Air Quality Assessment For:

RANCHERO ROAD GRADE SEPARATION PROJECT

(SEVENTH AVENUE TO DANBURY AVENUE)

CITY OF HESPERIA

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Executive Summary

This report assesses the potential air quality impacts from the proposed Ranchero Road Project in the City of Hesperia. Currently, Ranchero Road does not connect across the BNSF Rail line between 7th Avenue and Santa Fe Avenue. The project proposes construction of an under crossing which will result in a realignment of the roadway east of the railroad tracks. Further, the portion of Ranchero Road between 7th Street and Danbury Avenue will be constructed as four lanes within the new alignment. The existing roadway is currently two lanes, one in each direction.

Compliance with the Transportation Conformity requirements of the Federal Clean Air Act (FCAA) is demonstrated. A regional air quality analysis is performed to demonstrate that the project will not adversely impact regional air quality. A local air quality analysis is performed to demonstrate that the project will not adversely impact local air quality in the immediate vicinity of the project. The report also discusses potential impacts from Diesel Particulate Matter, which has been listed by CARB as a toxic substance and presents measures to reduce PM_{10} emissions during construction. The potential for release of Naturally Occurring Asbestos (NOA) during construction is also discussed.

The project is located in the Mojave Desert Air Basin (MDAB). The Mojave Desert Air Quality Management District (MDAQMD) and the California Air Resources Board (CARB) are responsible for regulating air pollutant sources in the Basin. The MDAQMD prepares the Air Quality Management Plan (AQMP), which specifies measures to meet the California and national ambient air quality standards (CAAQS and NAAQS). To show that the project will not adversely impact the region's air quality it must be shown that the project will not result in the transportation system exceeding the air pollutant budgets in the AQMP.

The 2004 Regional Transportation Plan (RTP) and 2004 Regional Transportation Improvement Program (RTIP) prepared by the Southern California Association of Governments (SCAG) are regional plans for future improvements in the areas transportation system. These plans must demonstrate that the air pollutant emissions associated with the transportation plan do not exceed the emissions budgets in the approved AQMP or otherwise conflict with the attainment of the AAQS. The proposed project is a part of the 2004 RTP and RTIP. Therefore, the project will not result in an exceedance of the transportation air pollutant emissions budgets and will not adversely impact regional air quality.

Local impacts, also known as "hot spots" are assessed for CO and PM10. The project area is designated as unclassified/attainment for PM2.5 and therefore a local hotspot analysis for PM2.5 is not required.

The CO impacts are assessed using the "Transportation Project-Level Carbon Monoxide Protocol" (Protocol) developed by the Institute of Transportation Studies at the University of California Davis for Caltrans. The protocol contains a series of flow charts with criteria to determine that the project will result in local CO concentrations that exceed the state and national AAQS. The flow chart questions and responses are presented in Section 4.2. This analysis

demonstrated that the project would not result in exceedances of the CAAQS and NAAQS. Therefore, the project will not result in an adverse local CO impact.

The FCAA requires a quantitative analysis of PM10 impacts if the EPA has prepared guidance for this analysis. At this time, a quantitative analysis methodology for assessment of PM10 impacts has not been released by the EPA. Therefore, a qualitative assessment is performed based on FHWA's "Guidance for Qualitative Project Level "Hot Spot" Analysis in PM10 Non-attainment and_Maintenance Areas" and Caltrans' "Particulate Matter and Transportation Projects, an Analysis Protocol." This analysis concludes that it is highly unlikely that the project will cause an exceedance of the PM10 NAAQS in the vicinity of the project. Therefore, the project will not result in an adverse local PM10 impact.

Overall, the project should result in a reduction of Mobile Source Air Toxics (MSAT) by shortening travel trips and reducing congestion along existing roads that will have traffic diverted by the project. However, the project will result in a slight increase in MSAT concentrations in the immediate vicinity of the project site as it represents a new source of MSAT in the immediate area. However, because the projected traffic volumes and heavy truck traffic along the project are relatively low (compared to a major freeway) MSAT levels along the project would not be expected to be excessive.

1.0 Introduction

This report assesses the potential air quality impacts from the proposed Ranchero Road Project in the City of Hesperia. Currently, Ranchero Road does not connect across the BNSF Rail line between 7th Avenue and Santa Fe Avenue. The project proposes construction of an under crossing which will result in a realignment of the roadway east of the railroad tracks. Further, the portion of Ranchero Road between 7th Street and Danbury Avenue will be constructed as four lanes within the new alignment. The existing roadway is currently two lanes, one in each direction. Exhibit 1 shows the project location on a regional vicinity map. A site plan showing the project extents is presented in Exhibit 2.

Compliance with the Transportation Conformity requirements of the Federal Clean Air Act (FCAA) is demonstrated. A regional air quality analysis is performed to demonstrate that the project will not adversely impact regional air quality. A local air quality analysis is performed to demonstrate that the project will not adversely impact local air quality in the immediate vicinity of the project. The report also discusses potential impacts from Diesel Particulate Matter, which has been listed by CARB as a toxic substance and presents measures to reduce PM10 emissions during construction. The potential for release of Naturally Occurring Asbestos (NOA) during construction is also discussed.

1.1 Purpose and Need

The BNSF Railroad bisects the City of Hesperia from north to south. The only street that crosses the railroad in the City of Hesperia is Main Street located approximately 2.7 miles north of Ranchero Road. The next nearest crossing is located approximately 7 miles from the Main Street Crossing (Bear Valley Road, located in the City of Victorville). Approximately half of the City's population lives on the east side of the railroad tracks. Interstate 15, the major travel corridor in the area, is located on the west side of the City. Therefore, residents living on the east side of the trucks must utilize Main Street to access I-15. Providing a second crossing, as the project proposes will reduce traffic and congestion on Main Street.

This crossing is vital not only to reduce traffic on Main Street but with only one crossing over the railroad tracks in the entire City, approximately half of the City's residents could be cut off from emergency services due to car accident, train derailment or natural disaster taking place at the Main Street crossing point. Emergency personnel would be unable to offer assistance to victims across the tracks, even if they were within sight, without traveling approximately seven miles via a crossing in a neighboring city.

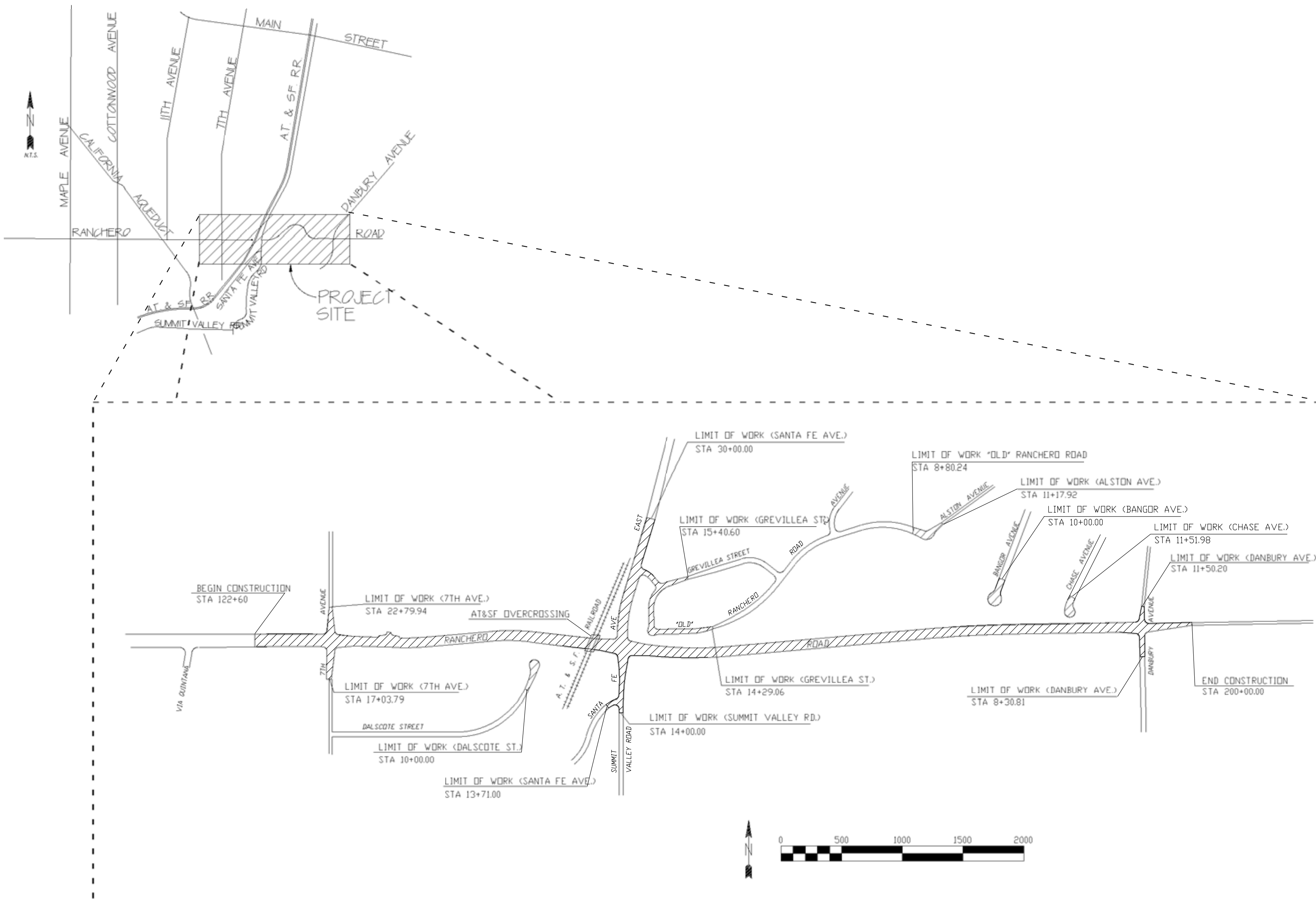


Exhibit 1
Vicinity Map

Mestre Greve Associates

Exhibit 2
Local Vicinity Map

Mestre Greve Associates

1.2 Proposed Project

The Ranchero Road Project consists of the following RTIP projects: SBD031276 Ranchero Road 7th Avenue to Danbury, realign road and construct railroad under crossing and temporary shoofly; and SBD55029 Ranchero Road 7th Avenue to Danbury widen from two to four lanes (3.00 miles). The project's termini are the intersection of Danbury Avenue and Ranchero Road on the east, and 7th Avenue and Ranchero Road on the west. The project is approximately 7,700 feet of new or existing, improved road, and includes a grade separation with BNSF rail right-of-way (the road will pass under the railroad tracks) and the construction of a temporary "shoofly" that will divert rail traffic during construction. The Ranchero Road extension project generally consists of cold planing (scraping of dirt and grading), and placing asphalt and or increase overlay on the lanes. Ranchero Road would be constructed as four lanes within the new alignment. The new alignment will cross the Antelope Valley Wash. The road extension alignment, area of impact, drainage improvements, and utility relocation areas were considered in this study, and as mapped on the preliminary design prepared by David Evans & Associates, Inc. for the City of Hesperia.

2.0 Regulatory Framework

Air pollutant emissions in the Mojave Desert Air Basin (MDAB) are subject to federal, State and local rules and regulations implemented through provisions of the Federal Clean Air Act (CAA), California Clean Air Act (CCAA) and the rules and regulations of the California Air Resources Board (CARB) and Mojave Desert Air Quality Management District (MDAQMD). The following is an overview of these rules and regulations.

2.1 Federal Clean Air Act

The United States Environmental Protection Agency (EPA) has overall responsibility for insuring that the nation meets the national ambient air quality standards (NAAQS). EPA Region IX, headquartered in San Francisco, covers all of California. The EPA has oversight authority over state and local air quality planning and regulatory actions through requirements set forth in the federal Clean Air Act (CAA), as amended in 1990 (42 U.S.C. section7401 et. seq.).

Title I of the 1990 CAA Amendments specifies procedures and timetables for attaining national ambient air quality standards for six criteria pollutants: ozone (O_3), carbon monoxide (CO), particulate matter (PM10—Particulate matter less than 10 microns aerodynamic diameter—and PM2.5—Particulate matter less than 2.5 microns aerodynamic diameter), nitrogen dioxide (NO_2), sulfur dioxide (SO_2) and lead (Pb). Since the passage of CAA and subsequent amendments, the US EPA has established and revised the National Ambient Air Quality Standards (NAAQS). The NAAQS are two tiered: primary, to protect public health, and secondary, to prevent degradation to the environment (i.e., impairment of visibility, damage to vegetation and property). The NAAQS are presented in Table 1. A description of the pollutants and listed in Table 1 their health effects are presented in Section 2.5.

Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)	1 Hour	0.09 ppm (180 $\mu g/m^3$)	Ultraviolet Photometry	---	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (130 $\mu g/m^3$)*		0.08 ppm (157 $\mu g/m^3$)[8]		
Respirable Particulate Matter (PM10)	24 Hour	50 $\mu g/m^3$	Gravimetric or Beta Attenuation*	150 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 $\mu g/m^3$		50 $\mu g/m^3$		
Fine Particulate Matter (PM2.5)	24 Hour	No Separate State Standard		65 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 $\mu g/m^3$	Gravimetric or Beta Attenuation*	15 $\mu g/m^3$		
Carbon monoxide (CO)	8 Hour	9.0 ppm (10mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		---	---	---
Nitrogen Dioxide (NO_2)	1 Hour	0.25 ppm (470 $\mu g/m^3$)	Gas Phase Chemiluminescence	0.053 ppm (100 $\mu g/m^3$)	Same as Primary Standard	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	---		---		
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	---	Ultraviolet Fluorescence	0.030 ppm (80 $\mu g/m^3$)	---	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 $\mu g/m^3$)		0.14 ppm (365 $\mu g/m^3$)	---	
	3 Hour	---		---	0.5 ppm (1300 $\mu g/m^3$)	
	1 Hour	0.25 ppm (655 $\mu g/m^3$)		---	--	---
Lead[9]	30 Day Average	1.5 $\mu g/m^3$	Atomic Absorption	---	Same as primary Standard	---
	Calendar Quarter	---		1.5 $\mu g/m^3$		High Volume Sampler and Atomic Absorption
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer – visibility of ten miles or more (0.07 – 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape		**No Federal Standards**		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography*			
Hydrogen sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)	Ultraviolet Fluorescence			
Vinyl Chloride[9]	24 Hour	0.01 ppm (26 $\mu g/m^3$)	Gas Chromatography			

* This concentration was approved by the Air Resources Board on April 28, 2005 and is expected to become effective in early 2006.

(1) California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter – PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations

(2) National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.

(3) Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

(4) Any equivalent procedure which can be shown to the satisfaction of ARB to provide equivalent results at or near the level of the air quality standard, may be used.

(5) National Primary Standards: The levels of air quality necessary to protect public health welfare from any known or anticipated adverse effects of a pollutant.

(6) National Secondary Standards: The levels of air quality necessary to protect public welfare from any known or anticipated adverse effect of a pollutant.

(7) Reference method as described by EPA. An "equivalent method" of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by EPA.

(8) New federal 8-hour ozone and fine particulate matter standards were promulgated by U.S. EPA on July 18, 1997. Contact U.S. EPA for further clarification and current federal policies.

(9) The ARB has identified lead and vinyl chloride as ‘toxic air contaminants’ with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: California Air Resources Board (11/29/05) (http://www.arb.ca.gov/aqs/aaqs2.pdf)

Areas with pollutant concentrations less the levels in Table 1 are designated as in attainment. Areas that exceed the standards are designated non-attainment. The attainment status of MDAB is discussed in Section 2.4.1 and Table 2. States must submit a State Implementation Plan (SIP) for all non-attainment areas that present measures required to attain the NAAQS and demonstrate that those measures will result in the attainment of the NAAQS. When an area is redesignated attainment, it must submit a Maintenance Plan to ensure continued attainment of the NAAQS.

The air quality provisions of the CAA as amended, the transportation planning provisions of 23 CFR section 771 et seq., and Title 49 of the United States Code (Transportation), are intended to ensure that integrated transportation and air quality planning occur in areas designated by the EPA as nonattainment or maintenance areas. On November 24, 1993, the EPA published criteria in the Federal Register (58 F.R. 62235; 40 CFR Part 93) for implementing CAA conformity requirements for both general development and transportation projects. According to the CAA, transportation plans, programs and projects cannot: (1) create new violations of the federal air quality standards, (2) increase the frequency or severity of existing violations of the standards or (3) delay attainment of standards. The project is subject to these conditions. The next section presents a chronology of transportation conformity development.

2.2 Chronology of Transportation Conformity Milestones

The basis of regional and project-level air quality analysis date back to the passage of the Federal Clean Air Act of 1970 (FCAA) (Pub. L.101-549). Since inception of FCAA, many milestones to improve air quality have been undertaken through various laws, regulations, and rules. Several of the significant achievements are highlighted.

- In 1976, the California Legislature adopted the Lewis Air Quality Management Act that created the Air Quality Management Districts (AQMDs) in addition to Air Quality Control Districts (AQCDs). Though separate from federal actions, the creation of AQMDs is an integral part of transportation conformity. The AQMDs and AQCDs promulgate the State Implementation Plans (SIPs) for achieving cleaner air quality on a region-by-region basis. The SIP is a legal agreement between California and the federal government to commit resources to improving air quality. It serves as the template for conducting regional and project-level air quality analysis. The appropriate Metropolitan Planning Organization (MPO) performs the project-level regional analysis, which is used by the project sponsor and is used for conformity determinations. For both analyses, the AQMD or AQCD for the area provide technical assistance.

- Amendments were added that culminated in the Clear Air Act Amendments of 1977 (Pub. L.95-95). The key provisions of the 1977 CAA ascertained the assurance of conformity as an affirmative responsibility of the head of each Federal agency and that no MPO could approve any transportation plan, program, or project that did not conform to a SIP. Specifically, the 1977 CAA stated: "No Federal department shall 1) engage in, 2) support in any way or provide financial assistance for, 3) license or permit, or 4) approve any activity which does not conform to a (State Implementation Plan) after it has been approved or promulgated".

- The most recent revision to the CAA is the Clean Air Act Amendment of 1990 [CAA §176(c)(1), 42 U.S.C. § 7506 (c)(1)]. The scope and content of transportation conformity provisions were expanded to require the reconciliation of the emissions impacts of transportation plans, programs, and projects with the SIP. Specifically, transportation plans, programs, and projects must conform to the purpose of the SIP. This integration of transportation and air quality planning is intended to ensure that transportation plans, programs, and projects will not: "(i) cause or contribute to any new violation of any standard in any area; (ii) increase the frequency or severity of any existing violation of any standard in any area; or (iii) delay timely attainment of any standard or any required interim emissions reductions or other milestones in any area".

- The 1990 CAA required a mechanism to conform the transportation plans, programs, and projects to the SIPs. This was accomplished by the development of the Transportation Conformity Rule (40 CFR Parts 51 and 93) in 1993. This rule established the criteria and procedures by which the FHWA, the FTA, and MPO entities determine the conformity of Federally funded or approved highway and transit plans, programs, and projects to SIP provisions.

- Subsequently, several revisions were made to the Transportation Conformity Rule. The August 1997 Transportation Conformity Rule Amendments revised the rule to: 1) streamlines and clarifies regulatory text; 2) eliminates the build/no-build test when SIP budgets have been submitted; 3) provides more flexibility even where there are no submitted SIP budgets; 4) allows for previously planned non-Federal projects to go forward when there is no currently conforming transportation plan/TIP (the Court found this provision invalid and it no longer applies); 5) limits network-based modeling requirements to large, urban areas; 6) provides rural areas the flexibility to choose among several conformity tests; 7) streamlines and clarifies modeling requirements; and 8) makes consequences of a EPA SIP disapproval without a protective finding less severe (the court found this provision invalid and it no longer applies).

- In March of 2006, the Transportation Conformity Rule was updated to include regulations for performing qualitative analysis of PM10 and PM2.5 Hotspot impacts. Only projects that are considered "Projects of Air Quality Concern" in federal PM10 and PM2.5 non-attainment areas are required to perform an analysis. Projects of air quality concern are defined, generally, as those for new or expanded highway projects that have a significant number of or significant increase in diesel vehicles, projects affecting intersections that are Level of Service D, E, or F with a significant number of diesel vehicles, new or expanded bus and rail terminals and transfer points with a significant number of diesel vehicles congregating in a single location, and projects in or affecting locations, areas ore categories of sites which are identified in the PM10 or PM2.5 applicable implementation plan as sites of possible violation. The rule allows for projects that have prepared a PM10 Hotspot analysis based on prior guidance to use that analysis without any changes.

2.3 California Clean Air Act

Under the federal Clean Air Act, state and local authorities have primary responsibility for assuring that their respective regions are in attainment of, or have a verifiable plan to attain, the National Ambient Air Quality Standards (NAAQS). The federal Clean Air Act also provides state and local agencies authority to promulgate more stringent ambient air quality standards, which is the case in California.

The California Air Resources Board (CARB), a department of the California Environmental Protection Agency (CalEPA), has responsibility for regulating mobile sources of pollution (including automobiles and trucks), preparing the State Implementation Plan (SIP) on the basis of locally prepared plans, and serving in an oversight capacity over all regional and county air pollution control districts in California. The CARB is governed by six members, chosen by the governor on the basis of qualifications specified in the State Health and Safety Code, and five members who are board members of regional and county air districts.

Through requirements of California Clean Air Act (CCAA), codified as Chapter 10 of Division 26 of the Health and Safety Code (Health and Safety Code 40910), all air districts in the state must endeavor to achieve and maintain state AAQS for ozone, carbon monoxide, sulfur dioxide, and nitrogen dioxide by the earliest practicable date. This goal does not apply to the state PM10 standard. California's AAQS are generally stricter than the federal standards for the same pollutants. California has also established state standards for sulfates, hydrogen sulfide (H_2S), vinyl chloride, PM2.5, and visibility-reducing particles. The California AAQS are also shown in Table 1. CARB also designates areas as being in attainment if they meet the standards in Table 1 or as being non-attainment if they do not meet the standards. The attainment status of MDAB for the California AAQS is discussed in Section 2.4.1 and Table 2.

2.4 Mojave Desert Air Quality Management District

All air districts in California are regulated through the California Health and Safety Code in Division 26 (Health and Safety Code Section 39000 et seq.), which sets forth their general powers and duties. Air quality planning requirements for all districts are contained in Chapter 10 of the above reference document.

The MDAQMD has local regulatory review and primary permitting and enforcement authority over potential stationary sources of air pollution within the Mojave Desert Air Basin portions of San Bernardino County, including all cities and towns. The EPA and California Air Resources Board (CARB) serve as technical review and advisory agencies, providing technical advice and guidance when necessary.

2.4.1 MDAB Non-attainment Designations and Classification Status

The USEPA and the CARB have designated portions of the Mojave Desert Air District non-attainment for a variety of pollutants, and some of those designations have an associated classification. Table 2 lists these designations and classifications. For federal non-attainment designations, the attainment date is also specified.

Table 2
State and Federal Air Quality Designations and Classifications

Pollutant	Federal	State
Ozone (O_3)	Moderate Non-attainement[1] (June 2010)	Non-attainment
PM10	Moderate Non-attainment (December 1999)	Non-attainment
PM2.5	Unclassified/Attainment	Non-attainment
CO	Attainment	Attainment
NO_2	Attainment	Attainment
SO_2	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	--	Attainment
Hydrogen Sulfide	--	Unclassified[2]
Visibility Reducing Particles	--	Unclassified

-- No Standard
1. Los Angeles and San Bernardino portions of MDAB
2. Searles Valley Planning Area is designated nonattainment

Sources: CARB Area Designation Website, http://www.arb.ca.gov/desig/adm/adm.htm accessed 1/19/06
EPA Green Book Website http://www.epa.gov/air/oaqps/greenbk/index.html accessed 1/19/06
Final Mojave Desert Planning Area Federal Particulate Matter Attainment Plan, July 31, 1995. http://www.mdaqmd.ca.gov/rules_plans/documents/MDPAPM10Plan.pdf

2.4.2 Air Quality Attainment Plans

Under the provisions of the federal and California Clean Air Acts, air quality management districts with air basins not in attainment of the air quality standards are required to prepare a plan that establish an area-specific program to control existing and proposed sources of air emissions so that the air quality standards may be attained by an applicable target date. As shown in Table 2,The MDAB is a designated nonattainment basin for ozone. In 1991 San Bernardino County Air Pollution Control District (APCD) prepared the Air Quality Attainment Plan (AQAP) for ozone. This plan established programs and control strategies to achieve the ozone standards and to maintain attainment of the other criteria pollutants. Measures in the 1991 AQAP include an updated permitting program for stationary pollution sources, reasonable control technology for all existing and future sources, provisions to develop area and indirect control programs such as land use and transportation measures and public education programs. In 1993 the APCD was separated from the County under State Assembly Bill 2522, and an autonomous agency – the MDAQMD – was created that encompassed the High Desert region of San Bernardino County.

In 1994, the EPA designated most of the Mojave Desert as nonattainment for PM10 based on violations of standards between 1989 and 1991. The MDAQMD prepared the Mojave Desert Planning Area (MDPA) Federal PM10 Attainment Plan in 1995 to provide dust control programs to meet federal PM10 standards by the year 2000. The MDPA covers only the southwestern portions of the Mojave Desert (Victor Valley area) because most of the controllable sources and receptors of PM10 and recording instrumentation are located in the Victor Valley. The plan outlines a program for implementation and enforcement of dust control measures. These measures are generally reflected through MDAQMD Rules 401 - Visible Emissions, 402 -

Nuisance, and 403 - Fugitive Dust Control. The federal standard for PM10 has been met within the area for the past eight years and a change of status to attainment is currently being evaluated.

The MDAQMD has adopted attainment plans for a variety of non-attainment pollutants. Table 3 lists the attainment plans applicable to the project area.

Table 3
MDAQMD Attainment Plans

Name of Plan	Date of Adoption	Applicable Area	Pollutant(s) Targeted	Attainment Date
1991 Air Quality Attainment Plan (AQAP)	26-Aug-91	San Bernardino County portion	NO_x and VOC	1994*
Mojave Desert Planning Area Federal Particulate Matter Attainment Plan	31-Jul-95	Mojave Desert Planning Area	PM10	2000*
Triennial Revision to the 1991 Air Quality Attainment Plan	22-Jan-96	Entire District	NO_x and VOC	2005
MDAQMD 2004 Ozone Attainment Plan (State and Federal)	26-Apr-04	Entire District	NO_x and VOC	2007

*Note: A historical attainment date given in an attainment plan does not necessarily mean that the affected area has been re-designated to attainment; please refer to Table 2.

2.5 Pollutant Descriptions and Health Effects

2.5.1 Ozone (O_3)

Ozone is a toxic gas that irritates the lungs and damages materials and vegetation. Ozone is a secondary pollutant; it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO_2, which occur only in the presence of bright sunlight. Pollutants emitted from areas cities react during transport downwind to produce the oxidant concentrations experienced in the area. Pollutants emitted in the Los Angeles area (South Coast Air Basin) and, to a lesser extent, the San Joaquin Valley contribute to the ozone levels experienced in the MDAB.

2.5.2 Particulate Matter (PM10), (PM2.5)

Particulate matter includes both aerosols and solid particles of a wide range of size and composition. Of particular concern are those particles between 10 and 2.5 microns in size (PM10) and smaller than or equal to 2.5 microns (PM2.5). The size of the particulate matter is referenced to the aerodynamic diameter of the particulate. The principal health effect of particulate matter of this size is that it can lodge in lungs contributing to respiratory problems. PM scatters light and significantly reduces visibility. PM poses a health hazard, alone or in combination with other pollutants. PM2.5 is emitted directly in vehicle exhaust, tire wear, and brake wear as well as formed in the atmosphere by chemical reactions between various substances. PM10 arises from such sources as road dust, diesel soot, combustion products, abrasion of tires and brakes, construction operations and windstorms..

2.5.3 Carbon Monoxide (CO)

Carbon monoxide is a colorless and odorless gas, which, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. Carbon monoxide combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High carbon monoxide concentrations can lead to headaches, aggravation of cardiovascular disease, and impairment of central nervous system functions. Carbon monoxide concentrations can vary greatly over comparatively short distances. Relatively high concentrations are typically found near crowded intersections, along heavily used roadways carrying slow-moving traffic, and at or near ground level. Even under the most severe meteorological and traffic conditions, high concentrations of carbon monoxide are limited to locations within a relatively short distance (300 to 600 feet [90 to 185 meters]) of heavily traveled roadways. Overall, carbon monoxide emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973.

2.5.4 Nitrogen Oxides (NO_X)

Nitrogen oxides are a gas that can cause breathing difficulties at high levels. Peak readings of NO_2 occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries and other industrial operations). NO_2 is also a precursor in the formation of ozone and secondary particulate matter. Ozone and particulate matter are formed through a series of photochemical reactions in the atmosphere. Because the reactions are slow and occur as the pollutants are diffusing downwind, elevated ozone levels are often found many miles from the source of precursor emission.

2.5.5 Lead (Pb)

Lead is a heavy metal used in industry and for years was a component in gasoline. Lead is a stable compound, which persists and accumulates both in the environment and in animals. In humans, it affects the blood-forming or hematopoletic, the nervous, and the renal systems. In addition, lead has been shown to affect the normal functions of the reproductive, endocrine, hepatic, cardiovascular, immunological, and gastrointestinal systems, although there is significant individual variability in response to lead exposure. Since 1975, lead emissions have been in decline due in part to the introduction of catalyst-equipped vehicles, and decline in production of leaded gasoline. In general, an analysis of lead is limited to projects that emit significant quantities of the pollutant (i.e. lead smelters) and are not applied to transportation projects.

2.5.6 Sulfur Oxides (SO_x)

Sulfur oxides constitute a class of compounds of which sulfur dioxide (SO_2) and sulfur trioxide (SO_3) are of greatest importance. The oxides are formed during combustion of the sulfur components in motor fuels. Relatively few sulfur oxides are emitted from motor vehicles since motor fuels are now de-sulfured. The health effects of sulfur oxides include respiratory illness, damage to the respiratory tract, and bronchia-constriction. SO_2 is the main pollutant contributing to the formation of acid rain.

2.5.7 Hydrogen sulfide (H_2S)

The MDAQMD is one of three districts in California classified for non-attainment of H_2S. This pollutant is not commonly found in the ambient atmosphere but can originate from natural sources such as volcanoes, sulfur hot springs, or in the case of the Mojave Desert, related to the mineral brine associated with the dry lakebed at Trona, approximately 45 miles northeast of the project site. The state ambient air quality standard for H_2S is not health-based but rather an aesthetic one, because the compound smells like rotten eggs. However, due to the distance from the source, this is not an issue in the Victor Valley. Furthermore, the proposed project would not contribute additional H_2S to the atmosphere.

2.5.8 Sulfates

Sulfates are produced by the reaction in the air of sulfur dioxide (SO_2), which is a component of acid rain. Sources for sulfur dioxide include coal burning power plants and diesel engines. California does not have any coal burning power plants and all diesel fuels sold in the state are now lower in sulfur. Therefore, sulfates are not an issue in the area. However, within the MDAQMD, the area around Trona is non-attainment for sulfates due to the mineral brine associated with the dry lakebed at Trona. The proposed project would not contribute to additional sulfates in the atmosphere.

2.5.9 Visibility-reducing particles

Visibility-reducing particles are common in the MDAB due to the vast open desert area, especially during windy conditions. Particles reduce visibility, obscuring the desert scenery, including views of the mountains.

2.5.10 Reactive Organic Gases (ROG)

In addition to the pollutants listed above ROG is also considered in the air quality analysis of projects in the state. Ozone is a secondary pollutant that is the result of chemical reactions between other pollutants, most importantly reactive hydrocarbons (also referred to as ROG), and NO_2, which occurs only in the presence of bright sunlight. The result is the formation of smog. There are no federal or state air quality standards for hydrocarbons or ROG as there are for other pollutants, however the MDAQMD does have thresholds for determining the severity of emissions of several criteria pollutants including ROG.

3.0 Environmental Setting

3.1 Climate

The High Desert is classified as an arid desert climate. In the Mojave Desert, this is modified by the San Gabriel and San Bernardino mountains forming barriers to precipitation. The rain shadow causes the aridity of the High Desert climate, while leaving the summers hot and the winters generally mild.

For most of summer, the region is under the northern edge of the Pacific Subtropical Ridge that limits cloud formation and allows strong daytime heating. This is a zone with no dominant winds, which allows more local effects such as the sea breeze passing through the Cajon Pass to control the local weather. The high-pressure systems also contribute to the presence of persistent inversion layers that trap pollutants by preventing their dispersion through vertical mixing. In late summer, the ridge can move far enough north to allow humid air from the Gulf of California, and even as far east as the Gulf of Mexico, into the High Desert. When this happens, thunderstorms may form, causing isolated flash floods and high wind gusts.

Average high temperatures in summer are in the mid 90s to 100° Fahrenheit (F). Average low temperatures are in the mid 60s to 70s. During winter, the Polar Front Jet stream steers pressure systems from west to east across the region. Mild rains result from systems steered in from the southwest and northwest. Winter storm systems are often followed by periods of clear skies and strong westerly or northerly winds. Average high temperatures in winter are in the mid 50s and average low temperatures are in the mid 30s.

Three weather factors have significant impacts on air quality; wind, precipitation and inversion layers.

3.1.1 Wind

Although the High Desert is 80 miles from the ocean, the sea breeze can be a dominant weather feature. The sea breeze is caused by differential heating of land and water. Land heats faster than the ocean, and because hot air rises, air warmed over land during the day rises, and cooler denser air from the ocean moves in to replace it. Normally limited to within a few miles of a coastline, the extreme differences in temperature between the desert and the Pacific Ocean make the sea breeze a regional phenomenon in southern California. The combination of extreme temperature differences and physical restraint on the air movements means there is a consistent source for strong wind blowing through Cajon Pass and across the High Desert. The sea breeze is a primary transportation medium, bringing pollutants out of the coastal valleys and into the desert.

The wind records for the Victorville weather station show that the mean wind speed is 6 mph. Approximately 51 percent of the time, the winds had a southerly component, showing the influence of the sea breeze through Cajon Pass. The winter storms, however, bring the region strong west to northwest winds. These winds act to disperse air pollutants and block the advection of smog through the pass into the desert. Exhibit 3 and Exhibit 4 present wind roses for Victorville, the nearest weather station to the project. Exhibit 3 presents a wind rose for 5 years of data from January 1, 2000 to December 31, 2005. Exhibit 4 presents data for the same period but only the fall/winter months of October through January.

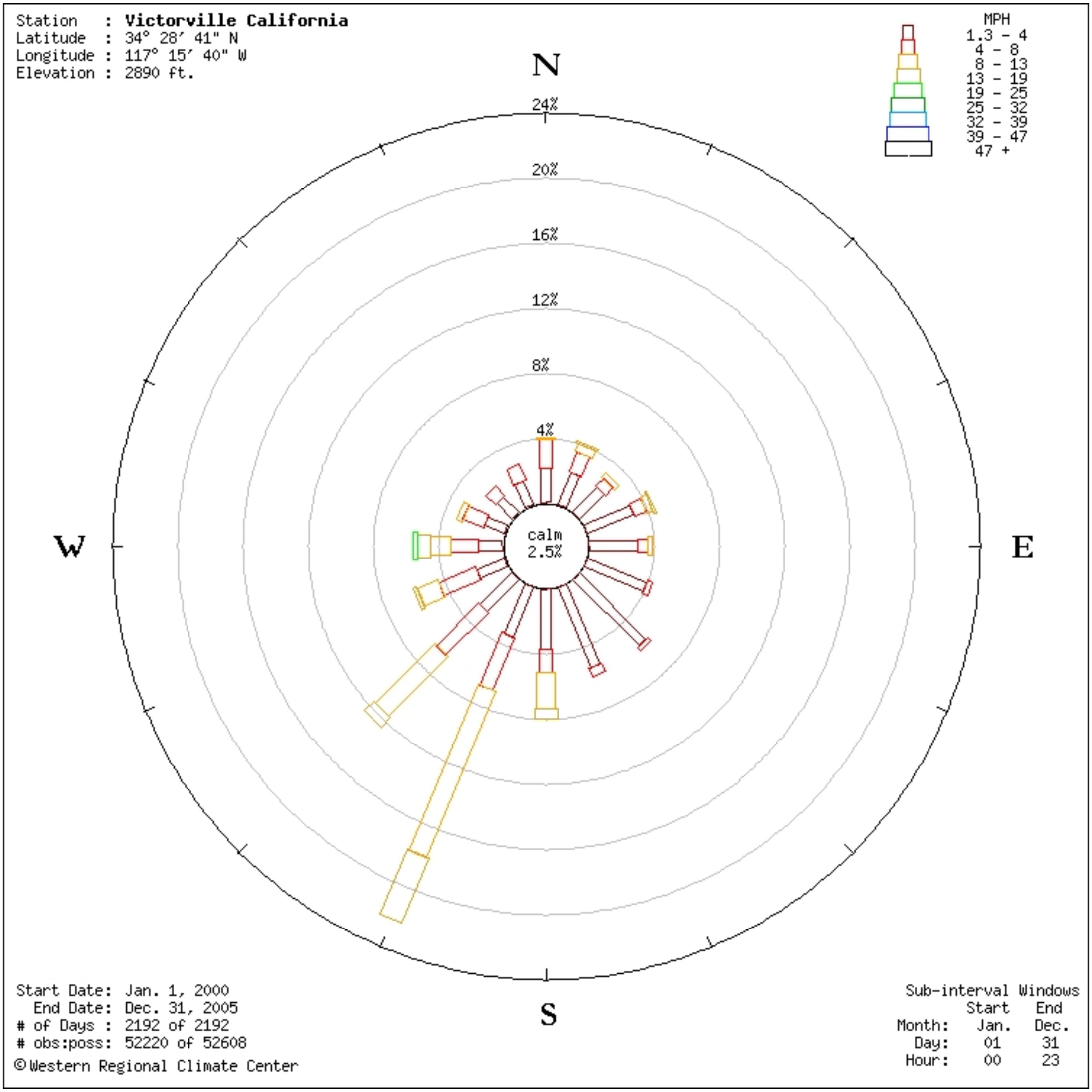
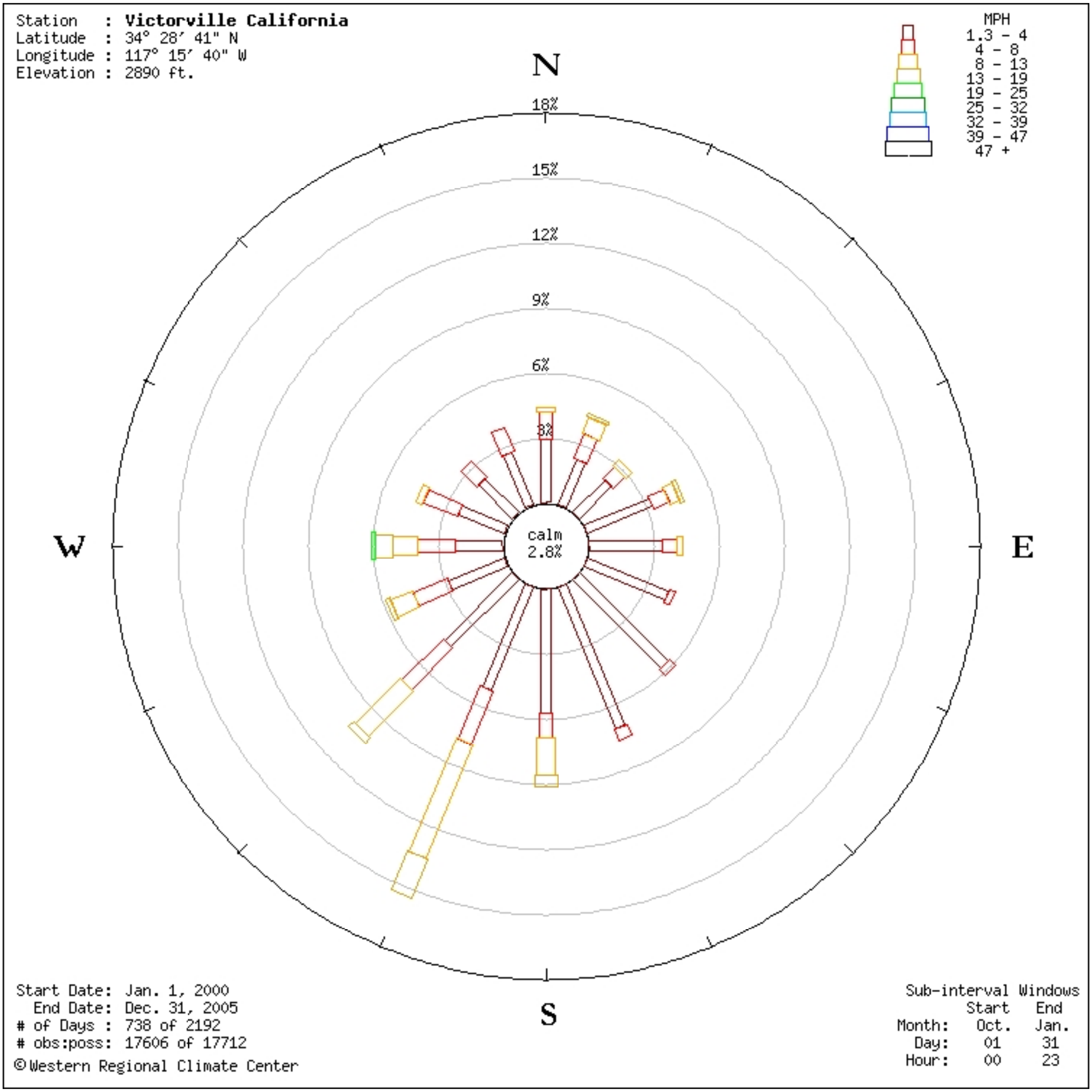


Exhibit 3
Annual Wind Rose for Victorville



October-January

Exhibit 4

Fall/Winter Wind Rose for Victorville

Mestre Greve Associates

Exhibit 3 shows that on an annual average the wind blows primarily from the south-southwest direction and the strongest winds blow from the west. Calm winds (less than 1.3 miles per hour occur 2.5 percent of the time and winds between 1.3 miles per hour and 4 miles per hour occur 44 percent of the time. Exhibit 4 shows a wind rose for the fall/winter period of October through January. This is the period when the highest CO concentrations would be expected to occur. Exhibit 4 shows that the winds are slightly more dispersed than the annual average but that the wind blows primarily form the south-southwest. Wind speeds are generally lower during the fall/winter period with calm conditions occurring 2.8 percent of the time and winds between 1.3 miles per hour and 4 miles per hour occurring 57.8 percent of the time. The average wind speed during the fall/winter months is 4.8 miles per hour as opposed to 6 miles for the annual average.

3.1.2 Precipitation

The High Desert receives precipitation from winter cold fronts and moist southerly air masses during the late summer. Precipitation at Southern California Logistics Airport averages less than five inches a year. Summer thunderstorms bring highly variable amounts of localized rain. The rain from these storms falling into the dry air often evaporates before reaching the surface. However, if the storm lasts long enough, the area beneath the storm may get several inches of rain over a short time leading to flash floods and rapid erosion in washes and gullies.

3.1.3 Inversions

Inversions are layers in the atmosphere where the temperature increases with height instead of decreasing as is normal. Inversions trap pollutants by limiting the vertical mixing which normally disperses pollutants into the upper atmosphere. There are two types of inversion affecting the High Desert. The first is the regional inversions caused by subsiding air within the high-pressure systems that dominate the summer weather. These subsidence inversions can occur at varying altitudes, with corresponding variable effects on the pollution levels. The lower the inversion level, the greater the concentration of pollutants between it and the ground. The second type is the radiation inversion that forms when the ground cools rapidly after sunset, cooling the air immediately above it at the same time. Radiation inversions can cause significant concentrations of pollutants because they are generally only a few hundred feet above the ground and are strongest during early morning commuting time. Especially in the desert, rapid heating of the ground usually disperses radiation inversions within an hour of sunrise.

3.2 Air Quality in the MDAB

Air quality is determined primarily by the types and amounts of contaminants emitted into the atmosphere, the size and topography of the local air basin and the pollutant-dispersing properties of local weather patterns. When airborne pollutants are produced in such volume that they are not dispersed by local meteorological conditions, air quality problems result. Dispersion of pollutants in the MDAB is influenced by periodic temperature inversions, persistent meteorological conditions and the local topography. As pollutants become more concentrated in the atmosphere, photochemical reactions occur, producing ozone and other oxidants.

Another major factor that influences the MDAB's ambient air quality is its location downwind from two air basins with substantial pollution sources. Due to the meteorological and topographical factors of the region, air pollutants from the South Coast Air Basin (SCAB) and the San Joaquin Valley Air Basin are transported into the MDAB contributing significantly to the ozone violations that occur in the MDAB. With the overall reduction in pollutant levels in the SCAB, the result has been a substantial decline in ozone violations in the Mojave Desert. However, with urban growth in the San Joaquin Valley rapidly increasing, and agriculture continuing to dominate that valley's economy, pollutant levels are increasing.

3.3 Monitored Air Quality

CARB and the MDAQMD maintain ambient air quality monitoring stations at several locations in the MDAB. Table 4 and Table 5 present monitoring data from the two ambient air quality monitoring stations nearest to the project. Table 4 summarizes the ambient air quality data collected during the previous four years at the Hesperia monitoring station located on Olive Street. Ozone and PM10 are the two pollutants monitored at the Hesperia station. Ozone, PM10, PM2.5, CO, NO_2 and SO_2 are all monitored at the Victorville monitoring station located at 14306 Park Avenue. Table 5 summarizes the ambient air quality data collected during the previous four years at the Victorville monitoring station.

Table 4
Air Quality Levels Measured at the Hesperia Monitoring Station

Pollutant	California Standard	National Standard	Year	% Meas.[1]	Max. Level	Days State Standard Exceeded[2]	Days National Standard Exceeded[2]
Ozone	0.09 ppm	0.12 ppm[4]	2005	99	0.140	41	3
(1- hour)	for 1 hr.	for 1 hr.	2004	100	0.138	28	2
			2003	100	0.163	43	2
			2002	99	0.147	46	5
Ozone	0.070 ppm	0.08 ppm	2005	99	0.120	n/a	34
(8- hour)	for 8 hr.	for 8 hr.	2004	100	0.119	n/a	21
			2003	100	0.130	n/a	34
			2002	99	0.123	n/a	45
Particulates	50 $\mu g/m^3$	150 $\mu g/m^3$	2005	94	58	1/6	0/0
PM10	for 24 hr.	for 24 hr.	2004	97	50	0/0	0/0
(24 Hour)			2003	99	129	3/18	0/0
			2002	86	55	--	0/0
Particulates	20 $\mu g/m^3$	50 $\mu g/m^3$	2005	94	28.7	Yes	No
PM10	AAM[3]	AAM[3]	2004	97	28.4	Yes	No
(Annual)			2003	99	30.6	Yes	No
			2002	86	32.7	Yes	No

1. Percent of year where high pollutant levels were expected that measurements were made
2. For annual averaging times a yes or no response is given if the annual average concentration exceeded the applicable standard. For the PM10 24 hour standard, daily monitoring is not performed. The first number shown in Days State Standard Exceeded column is the actual number of days measured that State standard was exceeded. The second number shows the number of days the standard would be expected to be exceeded if measurements were taken every day.
3. Annual Arithmetic Mean
4. With the implementation of the Federal 8-hour ozone standard, the 1-hour ozone standard was officially rescinded on June 15, 2005. The Federal Standard and number of days exceeding the standard are provided for informational purposes only.

-- Data not reported
n/a – no applicable standard
Source: CARB Air Quality Data Statistics web site www.arb.ca.gov/adam/ accessed 6/8/06

Table 5
Air Quality Levels Measured at the Victorville Monitoring Station

Pollutant	California Standard	National Standard	Year	% Meas.[1]	Max. Level	Days State Standard Exceeded[2]	Days National Standard Exceeded[2]
Ozone	0.09 ppm for 1 hr.	0.12 ppm[4] for 1 hr.	2005	96	0.131	16	2
			2004	98	0.111	8	0
			2003	100	0.145	22	2
			2002	100	0.127	30	3
Ozone	0.070 ppm[5] for 8 hr.	0.08 ppm for 8 hr.	2005	96	0.107	--	12
			2004	98	0.090	--	4
			2003	100	0.126	-	19
			2002	100	0.110	-	25
Particulates PM10 (24 Hour)	50 $\mu g/m^3$ for 24 hr.	150 $\mu g/m^3$ for 24 hr.	2005	99	61	1/5	0/0
			2004	99	56	1/--	0/0
			2003	93	181	3/--	1/8
			2002	95	98	--	--
Particulates PM10 (Annual)	20 $\mu g/m^3$ AAM[3]	50$\mu g/m^3$ AAM[3]	2005	99	28.9	Yes	No
			2004	99	28.0	Yes	No
			2003	93	33.2	Yes	No
			2002	95	34.3	Yes	No
Particulates PM2.5 (24 Hour)	No Standard	65 $\mu g/m^3$ for 24 hr.	2005	--	27	n/a	0
			2004	--	34	n/a	0
			2003	--	28	n/a	0
			2002	--	38	n/a	0
Particulates PM2.5 (Annual)	12 $\mu g/m^3$ AAM[3]	15 $\mu g/m^3$ AAM[3]	2005	--	9.4	No	No
			2004	--	10.8	No	No
			2003	--	11.4	No	No
			2002	--	13.9	Yes	No

1. Percent of year where high pollutant levels were expected that measurements were made
2. For annual averaging times a yes or no response is given if the annual average concentration exceeded the applicable standard. For the PM10 24 hour standard, daily monitoring is not performed. The first number shown in Days State Standard Exceeded column is the actual number of days measured that State standard was exceeded. The second number shows the number of days the standard would be expected to be exceeded if measurements were taken every day.
3. Annual Arithmetic Mean
4. With the implementation of the Federal 8-hour ozone standard, the 1-hour ozone standard was officially rescinded on June 15, 2005. The Federal Standard and number of days exceeding the standard are provided for informational purposes only.

-- Data not reported
n/a – no applicable standard
Source: CARB Air Quality Data Statistics web site www.arb.ca.gov/adam/ accessed 6/8/06
Table Continued on Next Page

Table 5 (Continued)
Air Quality Levels Measured at the Victorville Monitoring Station

Pollutant	California Standard	National Standard	Year	% Meas.[1]	Max. Level	Days State Standard Exceeded[2]	Days National Standard Exceeded[2]
CO	20 ppm for 1 hour	35 ppm for 1 hour	2005	98	2.5	0	0
			2004	99	2.2	0	0
			2003	97	3.9	0	0
			2002	96	3.0	0	0
CO	9.0 ppm for 8 hour	9 ppm for 8 hour	2005	98	1.6	0	0
			2004	99	1.7	0	0
			2003	97	2.1	0	0
			2002	96	1.8	0	0
NO_2 (1-Hour)	0.25 ppm for 1 hour	None	2005	99	0.077	0	n/a
			2004	99	0.080	0	n/a
			2003	100	0.090	0	n/a
			2002	99	0.085	0	n/a
NO_2 (AAM[3])	None	0.053 ppm AAM[3]	2005	99	0.019	n/a	No
			2003	99	0.021	n/a	No
			2003	100	0.022	n/a	No
			2002	99	0.022	n/a	No
SO_2 (24 Hour)	0.04 ppm 24 Hr.	0.14 ppm for 24 hr.	2005	97	0.003	0	0
			2004	97	0.003	0	0
			2003	99	0.006	0	0
			2002	96	0.006	0	0
SO_2 (AAM[3])	None	0.030 ppm AAM[3]	2005	97	0.001	n/a	No
			2004	97	0.001	n/a	No
			2003	99	0.001	n/a	No
			2002	96	0.001	n/a	No

1. Percent of year where high pollutant levels were expected that measurements were made
2. For annual averaging times a yes or no response is given if the annual average concentration exceeded the applicable standard. For the PM10 24 hour standard, daily monitoring is not performed. The first number shown in Days State Standard Exceeded column is the actual number of days measured that State standard was exceeded. The second number shows the number of days the standard would be expected to be exceeded if measurements were taken every day.
3. Annual Arithmetic Mean

-- Data not reported
n/a – no applicable standard
Source: CARB Air Quality Data Statistics web site www.arb.ca.gov/adam/ accessed 6/8/06

The data presented in Table 4 and Table 5 shows that Ozone and Particulates (PM10) are the pollutants of primary concern in the vicinity of the Project.

Data summarized in Table 4 shows that the 1-hour federal ozone standard was exceeded between 2 and 5 days in each the past four years at the Hesperia monitoring station. Note that as of June 15, 2005 the 1-hour federal ozone standard was rescinded as a part of the implementation of the 8-hour standard. The state standard has been exceeded between 28 and 46 days in each of the past four years. Table 5 shows that there have been between 0 and 3 days with exceedances of the federal 1-hour standard each year over the past 4 years at the Victorville station. The state standard has been exceeded between 8 and 30 days in each of the past four years.

Table 4 shows that the federal 8-hour standard was exceeded between 21 and 45 days each year at the Hesperia station. Table 5 shows that the federal 8-hour ozone standard was exceeded between 4 and 25 days at the Victorville station. The CARB website is not reporting the number of exceedances of the state 8-hour ozone standard but the standard was exceeded at least one day each year at both the Hesperia and Victorville stations in each of the past four years.

Table 4 shows that the federal PM10 24-hour and annual average standards have not been exceeded at the Hesperia monitoring station in the past four years. The state 24-hour average standard was exceeded an estimated 6 days in 2005, 0 days in 2004, 18 days in 2003 and was exceeded at least one day in 2002 but the number of days was not reported on the CARB website. The state annual average standard was exceeded in each of the past four years.

Table 5 shows that the federal PM10 24-hour standards was exceeded an estimated 8 days in 2003 but was not exceeded in 2004 or 2005 at the Victorville station. This exceedance occurred during a period with widespread wildfires in the southern California area that considerably affected PM10 concentrations. Complete data for 2002 is not available on the CARB website. The table shows that the federal annual average PM10 standard was not exceeded in the past four years. The state 24-hour average standard was exceeded at least 8 days in 2003, at least one day in 2004, and an estimated 5 days in 2005. Data for 2002 is not reported.

Table 5 shows that the federal PM2.5 24-hour and annual average standards have not been exceeded at the Victorville monitoring station in the past four years. The State annual average standard was exceeded in 2002 but not in 2003, 2004, or 2005.

Table 4 and Table 5 show that there were no other exceedances of state and federal AAQS at the Hesperia or Victorville monitoring stations.

4.0 Regional Air Quality Analysis

4.1 Rules and Implementation

The authority requiring projects to undergo a regional emissions analysis originates from section 176 (c) of the Clean Air Act Amendments of 1990. The law is codified as title 23 of the United States Code (23 U.S.C) and is known as the Federal Transit Act. The regulations cited to implement 23 U.S.C is contained in title 40 of the Code of Federal Regulation parts 51 and 93 (40 CFR 51 and 40 CFR 93). Parts 51 and 93 are commonly recognized as the Transportation Conformity Rule. On August 15, 1997 the Federal Register, published a public notice in which the US EPA requested to streamline the 40 CFR 51 & 93. The final rule issued by the US EPA modified 40 CFR 51 and 93, and classified the Transportation Conformity Rule as 40 CFR 51.390 and 40 CFR 93.100 – 93.128.

The Transportation Conformity Rule requires a regional emissions analysis to be performed by the MPO for projects within its jurisdiction. For the Basin, the MPO is the Southern California Association of Governments (SCAG). The regional emissions analysis includes all projects listed in the Regional Transportation Plan (Plan or RTP) and the Regional Transportation Improvement Program (TIP or RTIP). The RTP is a planning document spanning a 25-year period and the TIP implements the Plan on a 6-year increment. Both Plan and TIP must support an affirmative conformity finding to obtain FHWA approval. Projects that are included in the regional analysis are listed in the TIP and referenced in the Plan. Projects in a Plan and TIP that have been approved by the Federal Highway Administration (FHWA) are considered to have met the conformity requirement for regional emissions analysis.

The most recently approved RTP and TIP is the 2004 RTP and the 2004 RTIP. The 2004 Plan was adopted by SCAG on April 1, 2004 as Resolution #04-451-2. FHWA approved the 2004 Plan on June 7, 2004. The 2004 RTIP was adopted by SCAG on September 2, 2004 as Resolution #04-453-2. FHWA approved the 2004 RTIP on October 4, 2004.

In order to obtain FHWA approval of the Plan and TIP as conforming, the following tests, demonstrating affirmative findings with respect to the Transportation Conformity Rule, were applied to the 2004 RTP.

- Regional Emissions Analysis (Sections 93.109, 93.110, 93.118, and 93.119)
- Timely Implementation of TCMs Analysis (Section 93.113)
- Financial Constraint Analysis (Section 93.108)
- Interagency Consultation and Public Involvement Analysis (Sections 93.105 and 93.112)

Likewise, the approval of the 2004 RTIP was contingent upon satisfying all relevant CFR sections applicable:

- Consistency with SCAG’s 2004 RTP (Section 450.324 of the US DOT-Metropolitan Planning Regulations)

- Regional Emissions Analysis (Sections 93.109, 93.118, and 93.119)
- Timely Implementation of TCMs Analysis (Section 93.113)
- Financial Constraint Analysis (Section 93.108)
- Interagency Consultation and Public Involvement Analysis (Sections 93.105 and 93.112)

4.2 Project Inclusion in Approved RTP & RTIP

The proposed project is included in the FHWA approved 2004 RTIP and referenced in the Plan. It is listed as two separate projects, a railroad under crossing and a widening. These projects are listed in currently approved 2004 RTIP including amendments 1-15, local highway projects. Copies of the pages from the RTIP and the RTP showing the project are presented in the appendix. The following project information is excerpted from the 2004 RTIP:

Railroad Under crossing Project

- Lead Agency – Hesperia
- Project ID # - SBD031276
- Air Basin - MDAB
- Model # - (Not Listed)
- Program Code – NCN31
- Route – 0
- Begin Post Mile – .0
- End Post Mile – .0
- Description – Ranchero Road 7th Avenue to Danbury realign road and construct railroad under crossing.

Road Widening Project

- Lead Agency – Hesperia
- Project ID # - SBD055029
- Air Basin - MDAB
- Model # - 4693
- Program Code – CAX63
- Route – 0
- Begin Post Mile – .0
- End Post Mile – .0
- Description – Ranchero Road 7th Avenue to Danbury Widen from 2 to 4 lanes (3.00 miles).

As previously mentioned, the MPO performs the regional analysis as part of the submitted Plan and TIP. The regional analysis requirement is deemed satisfied and conforming to the Transportation Conformity Rule upon FHWA approval of the Plan and TIP. Projects in the approved TIP and Plan meet the regional analysis criterion by reference to the two documents.

4.3 Results of Regional Emissions Analysis

The intent and purpose of the Transportation Conformity Rule is to satisfy the Clean Air Act Amendments of 1990. This requires that projects do not cause new violation relating to NAAQS, increase the severity of such violation, and delay the attainment of NAAQS. The 2004 Plan and TIP satisfy these objectives by incorporating the applicable state implementation plan (SIP), which contain the applicable tests for regional emissions analysis.

To achieve the stated goals, the regional emissions analysis is categorized into several tests: the emissions budget test or the build/no-build test. For the budget test, the regional emissions must be equal or less than the emissions budgets. A budget test is used if and only if there is a submitted (with affirmative adequacy determination) or approved state implementation plan (SIP) for the criteria pollutant. Currently, there is a submitted 2003 1-hour Ozone SIP (Attainment Plans) with an affirmative adequacy determination. Therefore, the budget test is used for Ozone. There is not an approved PM10 attainment plan for the MDAB. Therefore, the build/no-build test is used for PM10. EMFAC2002 was used to model vehicular pollutant emissions for the test. Table 6 presents the results of the budget test for Ozone and the Build/No-Build test for PM10.

Table 6
Results of Regional Emissions Analyses

Ozone Emissions Analysis (tons/day)
MDAB/SSAB
Southeast Desert Modified Area) – Summer Temperatures

Ozone Precursors		2005	2007	2010	2020	2030
ROG (VOC)	Budget	26.500	23.200	23.200	23.200	23.200
	2004 TIP	23.110	20.342	16.691	9.924	8.178
NO_x	Budget	68.300	63.200	63.200	63.200	63.200
	2004 TIP	64.518	59.404	51.055	24.223	17.820

Particulate Matter (PM10) Emissions Analysis (tons/day)
MDAB San Bernardino County (Excluding Searles Valley)
– Annual Average Temperatures

PM10	2005	2010	2020	2030
Build (Plan)	7.837	8.843	10.889	13.046
No-Build (Baseline)	7.875	9.066	10.966	13.262

Source: 2004 RTIP

For criteria pollutants with an approved SIP, regional emissions are compared to budgets. Usually, the budget, the maximum allowed emission of a pollutant, decreases for future years until a reference year is attained. After this attainment year, the budget remains relatively constant with little or no further future rate of decrease. This budget at the attainment year corresponds to the ambient concentration of the criteria pollutant at NAAQS level. Alternatively, the intent in decreasing the budget is to reduce to ambient concentration of a criteria pollutant to the level delineated in the NAAQS as listed in Table 1, the essence of the

Clean Air Act Amendments of 1990. Until a criteria pollutant concentration is reduced to that required in NAAQS, the pollutant is considered to be in non-attainment.

For criteria pollutants without an approved SIP, regional emissions under build conditions (i.e. with the projects in the RTP) are compared to no-build emissions. Emissions under the build conditions must be shown to be below the no-build conditions

The goal of a SIP is to secure an attainment designation for the criteria pollutant at a future year. As such, a SIP is created if a pollutant is above NAAQS level; it is in non-attainment. Of the six criteria pollutants, only two are in non-attainment: Ozone and PM10. The remaining pollutants have its respective SIP to address attainment for future years. Table 2 lists the non-attainment designations per state and federal (NAAQS) standards. The attainment date for the federal standards is also shown.

4.4 Construction-Related PM10 Emissions

Construction activities associated with the proposed project would be temporary and would last the duration of Project construction. A qualitative construction emissions analysis has concluded that Project construction would not create adverse pollutant emissions. Short-term impacts to air quality would occur during minor grading/trenching, new pavement construction and the re-striping phase. Additional sources of construction related emissions include:

- Exhaust emissions and potential odors from construction equipment used on the construction site as well as the vehicles used to transport materials to and from the site; and

- Exhaust emissions from the motor vehicles of the construction crew.

Project construction would result in temporary emissions CO, NO_x, ROG, and PM10. Stationary or mobile powered on-site construction equipment includes trucks, tractors, signal boards, excavators, backhoes, concrete saws, crushing and/or processing equipment, graders, trenchers, pavers and other paving equipment. Based on the insignificant amount of daily work trips required for Project construction, construction worker trips are not anticipated to significantly contribute to or affect traffic flow on local roadways and are therefore not considered significant. During the demolition phase some asphalt concrete (AC) pavement and curbs and gutters would have to be removed.

In order to further minimize construction-related emissions, all construction vehicles and construction equipment would be required to be equipped with the state-mandated emission control devices pursuant to state emission regulations and standard construction practices. After construction of the Project is complete, all construction-related impacts would cease, thus resulting in a less than significant impact. Short-term construction PM10 emissions would be further reduced with the implementation of required dust suppression measures outlined within MDAQMD Rule 402 presented in Section 4.5. Note that Caltrans Standard Specifications for construction (Section 10 and 18 [Dust Control] and Section 39-3.06 [Asphalt Concrete Plants]) must also be adhered to. Therefore, Project construction is not anticipated to violate State or Federal air quality standards or contribute to the existing air quality violation in the air basin.

Section 93.122(d)(2) of the EPA Transportation Conformity Rule requires that in PM10 non-attainment and maintenance areas (for which the SIPs identify construction-related fugitive dust as a contributor to the area problem), the RTIP should conduct the construction-related fugitive PM10 emission analysis. The 2004 RTIP PM10 regional emissions analysis includes the construction and unpaved road emissions for conformity finding.

4.4.1 Mitigation of PM10 During Construction

The MDAQMD rules contain provisions calling for mitigation of PM10 emissions during construction. Pursuant § 93.117, the City of Hesperia, the project sponsor, is required to stipulate to include, in its final plans, specification, and estimates, control measures that will limit the emission of PM10 during construction.

The PM10 emissions is a composite of geologic and aerosol variety. The prime concern during construction is to mitigate geologic PM10 that occurs from earth movement such as grading. MDAQMD has established Rule 403.2 that addresses the mitigation PM10 by reducing the ambient entrainment of fugitive dust and Rule 402, which requires that air pollutant emissions not be a nuisance off-site. Fugitive dust consists of solid particulate matters that becomes airborne due to human activity (i.e. construction) and is a subset of total suspended particulates. Likewise, PM10 is a subset of total suspended particulates. Approximately 50% of total particulate matter suspended comprise of PM10. Hence, in mitigating for fugitive dust, emissions of geologic PM10 are reduced.

During construction of the proposed project, the City and its contractors shall be required to comply with regional rules, which shall assist in reducing short-term air pollutant emissions. MDAQMD Rule 402 requires that air pollutant emissions not be a nuisance off-site. MDAQMD Rule 403 requires construction activities implement the following measures.

(a) Use periodic watering for short-term stabilization of Disturbed Surface Area to minimize visible fugitive dust emissions. For purposes of this Rule, use of a water truck to maintain moist disturbed surfaces and actively spread water during visible dusting episodes shall be considered sufficient to maintain compliance;

(b) Take actions sufficient to prevent project-related Trackout onto paved surfaces;

(c) Cover loaded haul vehicles while operating on Publicly Maintained paved surfaces;

(d) Stabilize graded site surfaces upon completion of grading when subsequent development is delayed or expected to be delayed more than thirty days, except when such a delay is due to precipitation that dampens the disturbed surface sufficiently to eliminate Visible Fugitive Dust emissions;

(e) Cleanup project-related Trackout or spills on Publicly Maintained paved surfaces within twenty-four hours; and

(f) Reduce non-essential Earth-Moving Activity under High Wind conditions. For purposes of this Rule, a reduction in Earth-Moving Activity when visible dusting occurs from moist and dry surfaces due to wind erosion shall be considered sufficient to maintain compliance.

Alternatively, the City and/or contractor can prepare an Alternative PM10 Control Plan (ACP) per section G of Rule 403.2. The ACP would need to be prepared and approved by the MDAQMD prior to construction and describe proposed alternative dust reduction actions that would be performed in lieu of those listed above that would generate equivalent emission reductions. Further, a monitoring program would be required to evaluate the effectiveness of the alternative actions and contingency measures would be required if the alternative actions proved insufficient.

5.0 Local Air Quality Analysis

5.1 Overview of Local Analysis

The local analysis is commonly referred to as project level air quality or "hot spot" analysis. The primary focus is the operational impact on air quality created by the proposed improvement. Unlike a regional analysis, a local analysis is constrained in scope and is limited to a particular project. The criteria pollutants analyzed do not consist of all pollutants in non-attainment. The analysis is restricted to carbon monoxide, PM10, and PM2.5. However, the Mojave Desert portion of San Bernardino is not designated non-attainment for PM2.5 and therefore, a PM2.5 analysis will not be required for this project. The analysis years consist of the year opening to traffic and the ultimate horizon year referenced in the approved Plan rather than a series of present and future years. The approach to the local analysis is tiered and is dependent on the status of the carbon monoxide SIP: the CO analysis can be qualitative, quantitative, or computational. The PM10 and PM2.5 analysis is qualitative in scope.

Similar to the regional analysis, the Transportation Conformity Rule also applies to the local analysis. Sections of pertinence are 40 CFR 93.115 to 93.117, 93.123,and 93.126 to 93.128. In California, the procedures of the local analysis for carbon monoxide are modified pursuant §93.123(a)(1). Sub-paragraph (a)(1) states the following:

> *CO hot-spot analysis*. (1) The demonstrations required by §93.116 ("Localized CO and PM10 violations") must be based on a quantitative analysis using the applicable air quality models, databases, and other requirements specified in 40 CFR part 51, Appendix W (Guideline on Air Quality Models). These procedures shall be used in the following cases, unless different procedures developed through the interagency consultation process required in §93.105 and approved by the EPA Regional Administrator are used:

The sub-paragraph allows for an alternative. In California, the procedure for performing a CO analysis is detailed in the Transportation Project-Level Carbon Monoxide Protocol (Protocol) developed by the Institute of Transportation Studies at the University of California, Davis. David P. Howekamp, Director of Air Division of the US EPA Region IX, in October of 1997, approved the Protocol. The US EPA deemed the Protocol as an acceptable option to the mandated quantitative analysis. The Protocol incorporates §93.115 – 93.117, §93.126 – 93.128 into its rules and procedures.

§93.123(b)(1) requires that the PM10 and PM2.5 analysis be quantitative. However, §93.123(b)(4) waives such analysis until the EPA releases modeling guidance and announces such guidance in the Federal Register. Since no modeling guidance has been released to date, §93.123(b)(4) offsets the implementation of §93.123(b)(1) and only a qualitative analysis is required.

On September 2001, the FHWA released guidance, to its field offices, titled Guidance for Qualitative Project Level "Hot Spot" Analysis in PM10 Non-attainment and Maintenance Areas. The document attempts to fill the gap in understanding the type of analysis required. It provides examples on how to develop a hot spot analysis and the guidance allows for other methods as well. In California, the Department in association with the University of California at Davis has developed a guidance titled Particulate Matter and Transportation Projects, an Analysis Protocol which formalizes the FHWA guidance and provides a step-by-step flow chart to assess PM10 hotspot impacts. The analysis approaches detailed in the PM Protocol document provide project analysts with several tools likely to be of assistance once EPA issues its final PM hot spot regulations.

In March 2006, the EPA released guidance on PM_{10}, and $PM_{2.5}$ analyses, titled Transportation Conformity Guidance for Qualitative Hot-spot Analysis in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas. This guidance supercedes the FHWA and Caltrans PM10 guidance discussed above, however, the new guidance allows that if an analysis using the previous guidance was started before the release of the new guidance the previous guidance could be used. The analysis for PM10 for this project was begun in November 2005 under the previous guidance and is presented in Section5.3. As the project area is located in an unclassified/attainment area for PM2.5, a PM2.5 hotspot analysis is not required.

5.2 Local Analysis: Carbon Monoxide Operational Impact

The scope required for local analysis is summarized in Section 3, Determination of Project Requirements, and Section 4, Local Analysis, of the Protocol. Section 3 incorporates §93.115 and the procedure to determine project requirements begins with the Figure 1: Requirements for New Projects. The sections cited is followed by a response, which will determine the next applicable section of the flowchart for the proposed project. The flowchart begins with Section 3.1.1. Exhibit 5 and Exhibit 6 show the flowchart from Figure 1 of the protocol and the path taken.

Q: 3.1.1. Is this project exempt from all emissions analyses? (see Table 1)

A: No. Table 1 of the Protocol is Table 2 of §93.126. Section 3.1.1 is inquiring if the project is exempt. Such projects appear in Table 1 of the Protocol. The proposed project does not appear in Table 1. It is not exempt from all emissions analyses.

Q: 3.1.2. Is project exempt from regional emissions analyses? (see Table 2)

A: No. Table 2 of the Protocol is Table 3 of §93.127. The question is attempting to determine if project is listed in Table 2. The project is not listed in Table 2 and is not exempt from regional analyses.

Q: 3.1.3. Is the project locally defined as regionally significant?

A: Yes. Projects not listed in Table 1 nor 2 of the Protocol are usually considered regionally significant unless otherwise stipulated via interagency consultation. The project is considered as regionally significant.

Q: 3.1.4. Is project in a federal attainment area?

A: Yes. As shown in Table 2 of this report, the MDAB is in attainment for CO per federal designation.

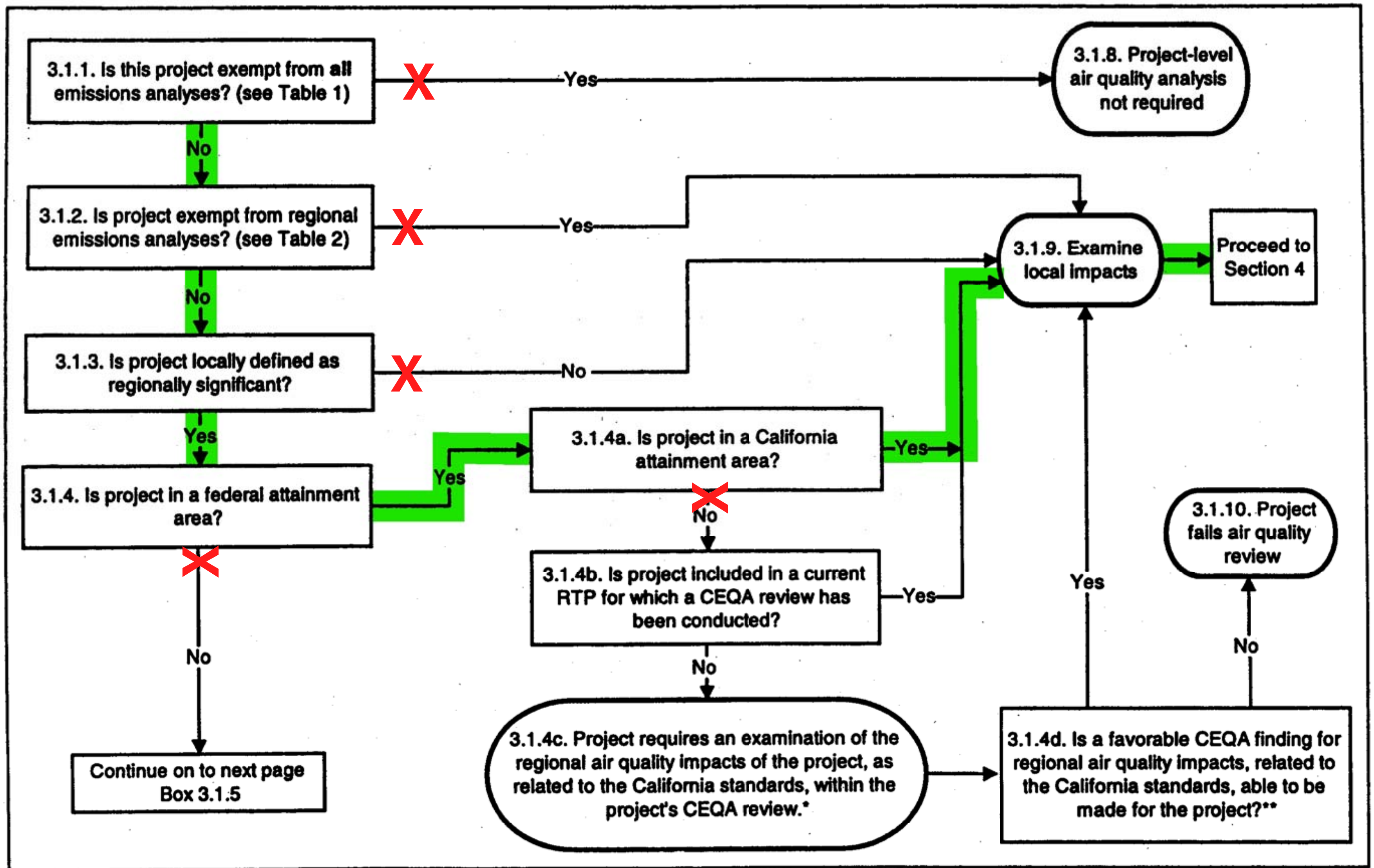


Figure 1. Requirements for New Projects

Exhibit 5

Caltrans CO Protocol Figure 1 - Part 1

Mestre Greve Associates

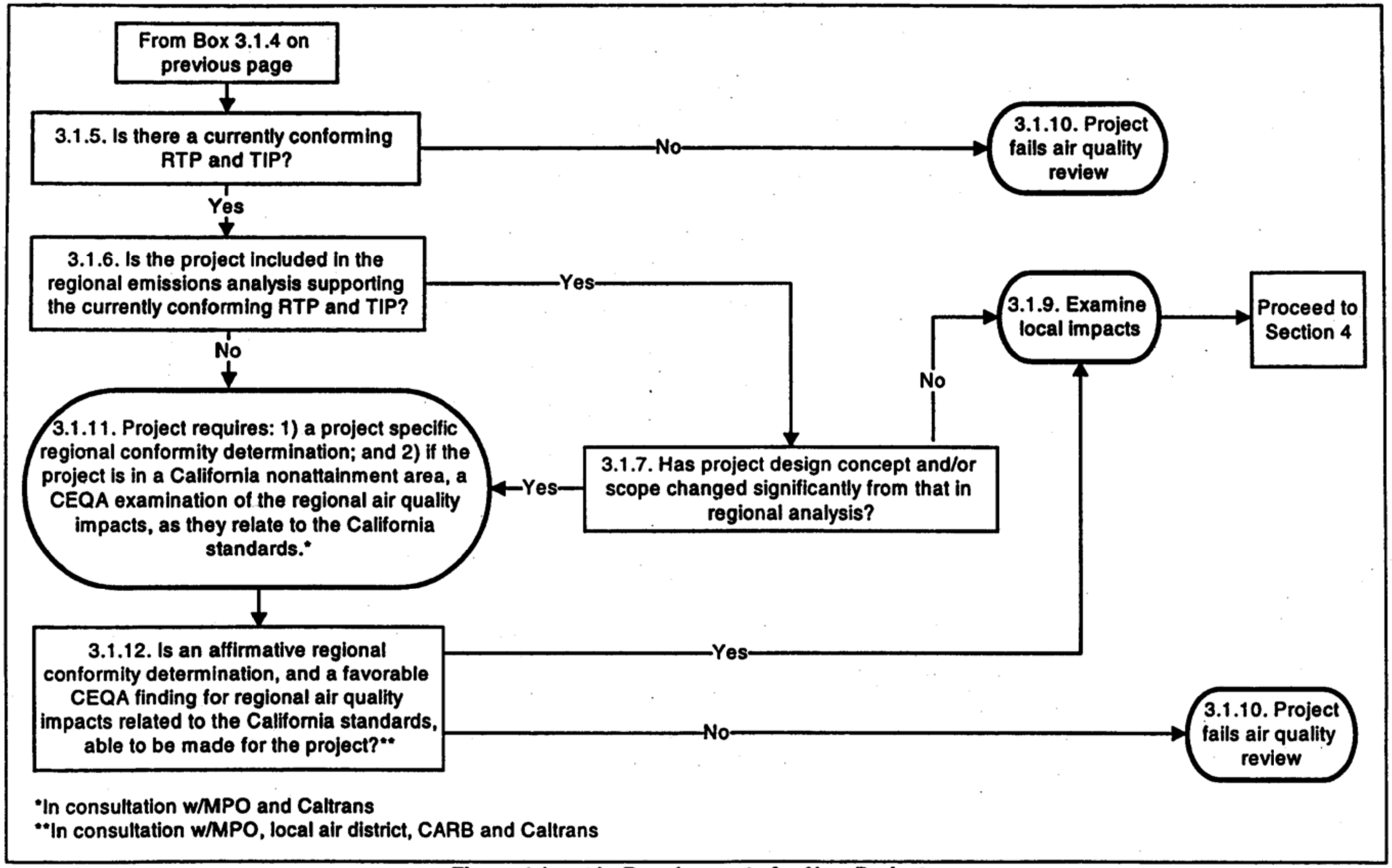


Figure 1 (cont.). Requirements for New Projects

Exhibit 6
Caltrans CO Protocol Figure 1 - Part 2

Q: 3.1.4a. Is project in a California attainment area?

A: Yes. As shown in Table 2 of this report, the MDAB is in attainment for CO per state designation.

Q: 3.1.9. Examine local impacts.

A: Section 3.1.9 of the flowchart directs the project evaluation to Section 4, Local Analysis, of the Protocol. This concludes the flow chart presented in Figure 1 of the Protocol (Exhibit 5 and Exhibit 6 of this document).

Likewise, Section 4 contains a Local CO Analysis flowchart presented in Figure 3. This flowchart is used to determine the type of CO analysis required for the proposed project. Below is a step-by-step explanation of the flowchart. Each level cited is followed by a response, which will determine the next applicable level of the flowchart for the proposed project. The flowchart begins at level 1. Exhibit 7 and Exhibit 8 show the flowchart from Figure 3 of the protocol and the path taken.

Q: Level 1. Is the project in a CO non-attainment area?

A: No, as shown in Table 2, the Basin is currently classified as attainment for CO.

Q: Level 1. Was the area redesignated as "attainment" after the 1990 Clean Air Act?

A: No, the area was designated attainment prior to the 1990 Clean Air Act. Therefore, the flow chart is continued to Level 7.

Q: Level 7. Does the project worsen air quality?

A: Potentially, Yes. Three criteria for determining if the project will worsen air quality are presented in the CO Protocol; (1) does the project significantly increase the percentage of vehicles operating in the cold start mode, (2) the project significantly increases traffic volumes, (3) the project worsens traffic flow (i.e.; reduction in speed or increase in average delay).

The project would not be expected to affect the percentage of vehicles operating in the cold start mode and would be expected to improve traffic flow in the vicinity of the project and along Main Street, the nearest railroad over crossing. However, this traffic diverted from Main Street will flow on Ranchero Road and as a result, traffic volumes on Ranchero Road will increase substantially. Therefore, the project fails the second criteria.

Q: Level 7. Is project suspected of resulting in higher CO concentrations than those existing within the region at the time of attainment demonstration?

A: The region has never been designated as non-attainment and therefore there has been no attainment demonstration. Therefore, there is no attainment demonstration to compare to the project. As a result, this question is skipped for this project.

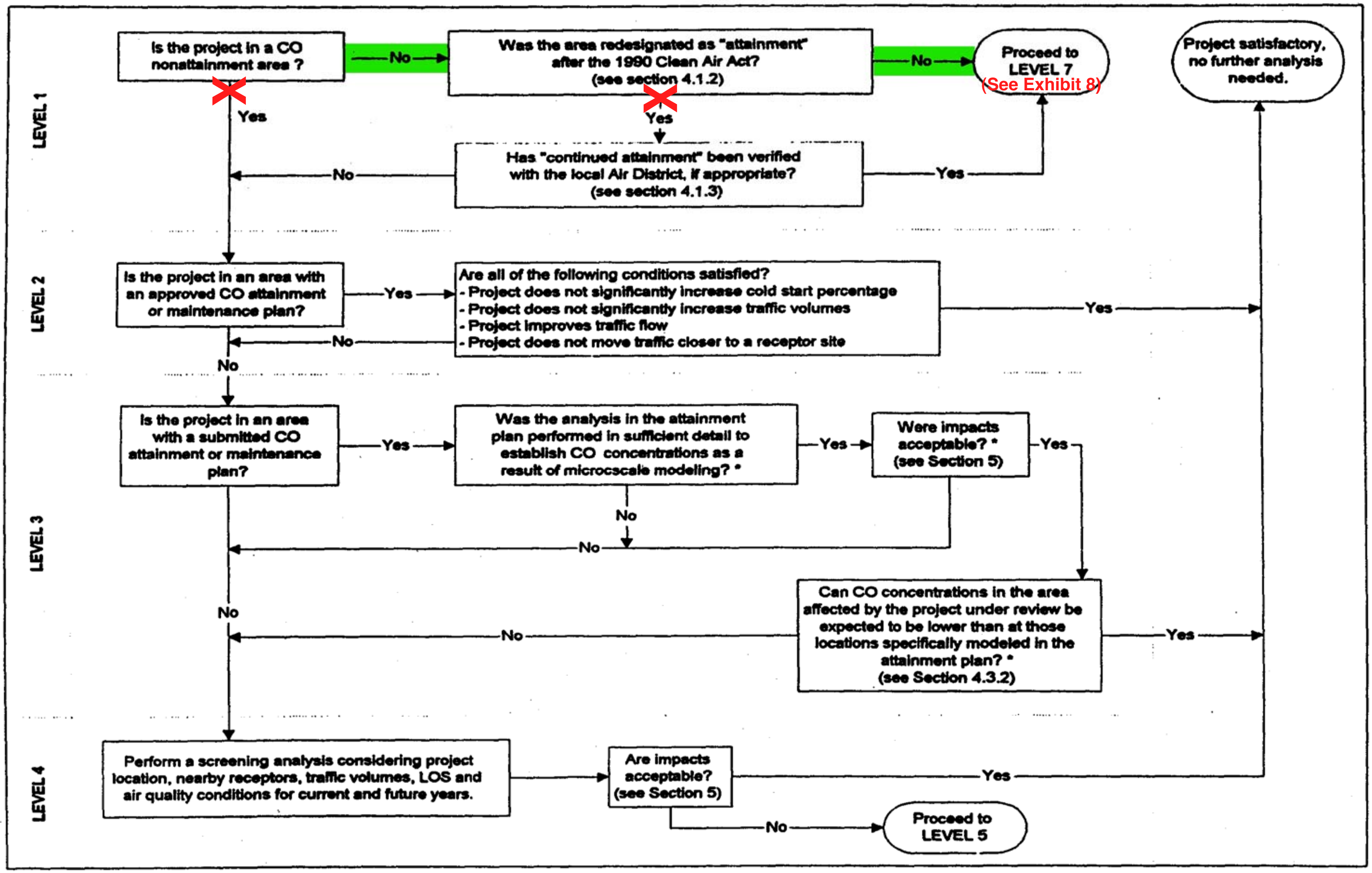


Figure 3. Local CO Analysis

Exhibit 7
Caltrans CO Protocol Figure 3 - Part 1

Mestre Greve Associates

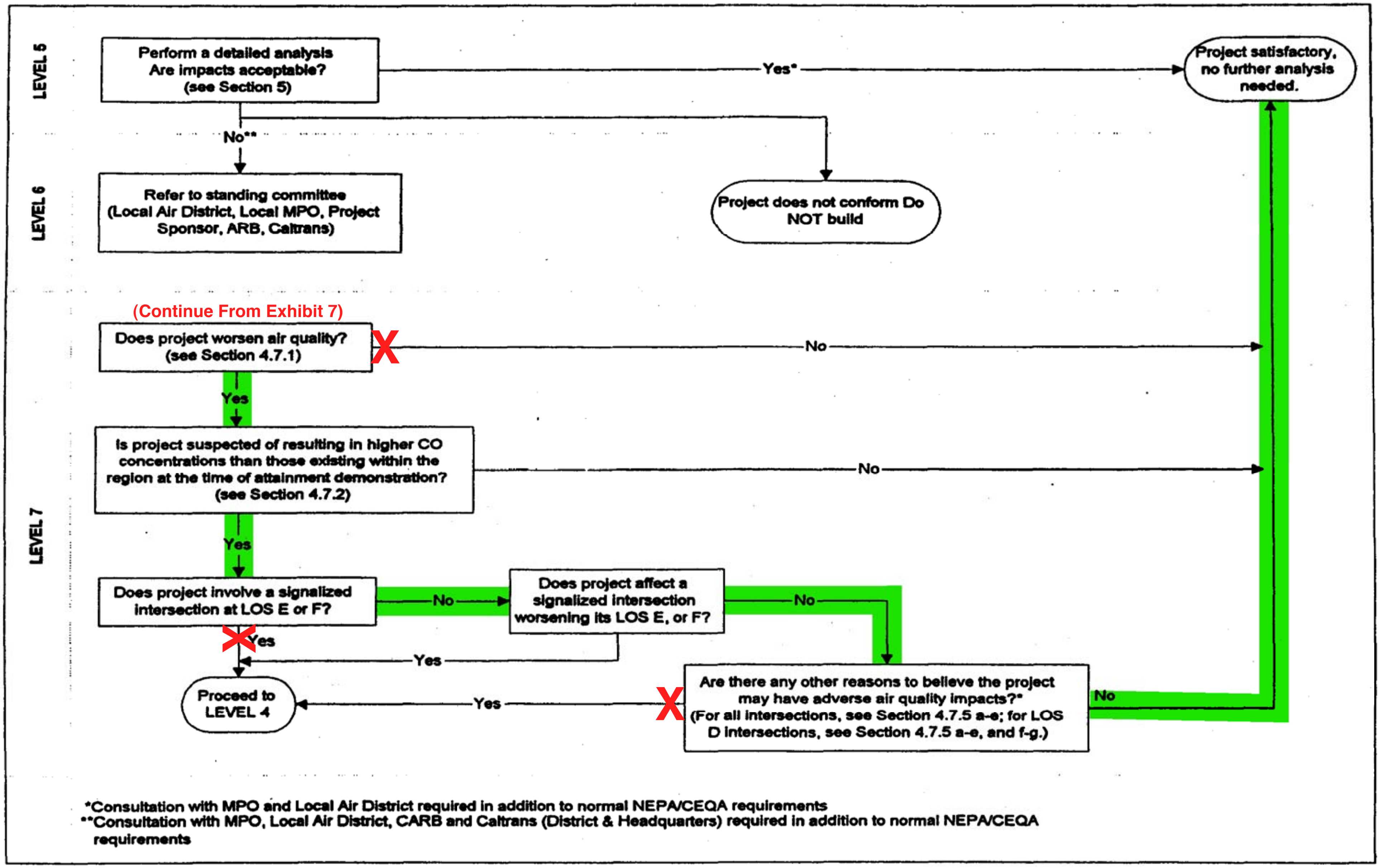


Figure 3 (cont.). Local CO Analysis

Exhibit 8
Caltrans CO Protocol Figure 3 - Part 2

Mestre Greve Associates

Q: Level 7. Does the project involve a signalized intersection at LOS E or F?

A: No, Tables 3 and 5 of the traffic study prepared for the project ("City of Hesperia Ranchero Road Grade Separation Traffic Impact Analysis (Revised)" by Kunzman Associates, December 16, 2005) show that future LOS at all intersections will be D or better in the future with the project.

Q: Level 7. Does the project affect a signalized intersection worsening its LOS to E or F?

A: No, Tables 3 and 5 of the traffic study prepared for the project ("City of Hesperia Ranchero Road Grade Separation Traffic Impact Analysis (Revised)" by Kunzman Associates, December 16, 2005) show that future LOS at all intersections will be D or better in the future with the project.

Q: Level 7. Are there any other reasons to believe that project may have adverse air quality impacts?

A: No. The CO Protocol applies five criteria to intersections with LOS of C or better to determine if the project may have adverse air quality impacts. These criteria are listed below with a discussion of each;

(1) The existence of an urban street canyon.
There are no urban street canyons in the vicinity of the project.

(2) The existence of a high percentage of Heavy Gas Trucks.
There is no reason to believe that there is a high percentage of Heavy Gas Trucks operating in the vicinity of the project.

(3) A high percentage of vehicles operating in the cold start mode coupled with a high traffic volume.
There is no reason to believe that there is an unusually high percentage of vehicles operating in the cold start mode. Further, the traffic volumes in the vicinity of the project are relatively low. The intersection with the highest peak hour traffic volume (2030 PM Peak Hour – I Street at Main Street) has 4,229 vehicles traveling through it. This is not a high traffic volume in terms of CO concentrations.

(4) Locations near a significant source of CO.
There are no significant sources of CO in the area.

(5) Locations with high background CO concentrations.
Table 5 shows that existing 8-hour ambient CO concentrations at the Victorville monitoring station have not exceeded 2.1 ppm in the last four years. The protocol shows that for LOS D intersections, a background concentration of 5 ppm would be considered high in 2005 and a background concentration of 6 ppm would be considered high in 2010.

Based on the discussion presented above, no adverse air quality impacts would be expected along intersections with an LOS of C or better. All intersections are projected to have an LOS of C or better in 2010. Two intersections are projected to have an LOS of D in the 2030 scenario, C Avenue at Main Street and I Avenue at Main Street, both for the PM peak hour. It should be noted that, as discussed in the purpose and need section, the project would be expected to reduce traffic on Main Street. Main Street is the only street in the city that provides a railroad crossing. Without the project, all traffic on the east side of the train tracks traveling to I-15 would need to travel across the railroad tracks at Main Street. With the project, some of this traffic would travel on Ranchero Road. The traffic study does not present traffic volumes for conditions with and without the project to quantify this effect.

There are two remaining criteria that are applied to LOS D intersections in addition to the criteria listed above. One for intersections with pre-timed signals and one for actuated signals. For both, demonstrating that meteorological conditions are not favorable to high CO concentrations during the representative fall (beginning in October) and winter period concludes that the project will not have adverse air quality impacts. Meteorological conditions favorable to higher CO concentrations can be characterized as stable air conditions (atmospheric stability of “E” or “F”), relatively low wind speeds (less than 1.5 meters per second—3.5 miles pr hour) that persist for at least six hours, and with consistent wind direction having greater than 50 percent frequency of occurrence into a single 45 degree sector during an inclusive 8-hour period (i.e.; the wind blows in to the same 45 degree sector at least 4 hours of any given inclusive 8 hour period).

Exhibit 9 presents a wind rose for the Victorville weather station during the fall/winter months (October through January) during periods with an atmospheric stability of “E”. Exhibit 10 shows the same data during periods with an atmospheric stability of “F”. The data shows that the Victorville station experiences an atmospheric stability of “E” 5.7 percent of the time, and an atmospheric stability of “F” 40.5 percent of the time during the fall/winter months. Therefore, the area experiences a stability class of “E” or “F” 46.2 percent of the fall/winter months. During periods with an atmospheric stability of E, wind speeds are less than 4 miles per hour 14.8 percent of the time. During periods with an atmospheric stability of “F”, wind speeds are less than 4 miles per hour 86.6 percent of the time. Combining these percentages shows that wind speeds are less than 4 miles per hour and atmospheric stability is “E” or “F” 40.9% of the time. Therefore, one could expect to see conditions with atmospheric stability of “E” or “F” and wind speeds less than 3.5 miles per hour for periods of at least 6 hours. However, during these conditions the wind only blows in the direction of a single 45-degree sector 22.9 percent of the time (including calm periods). Therefore, the wind would not be expected to blow in the same 45-degree sector for 4 hours in an 8-hour period. Typically, during periods with atmospheric stability of “E” or “F” and low wind speeds the wind direction is quite variable.

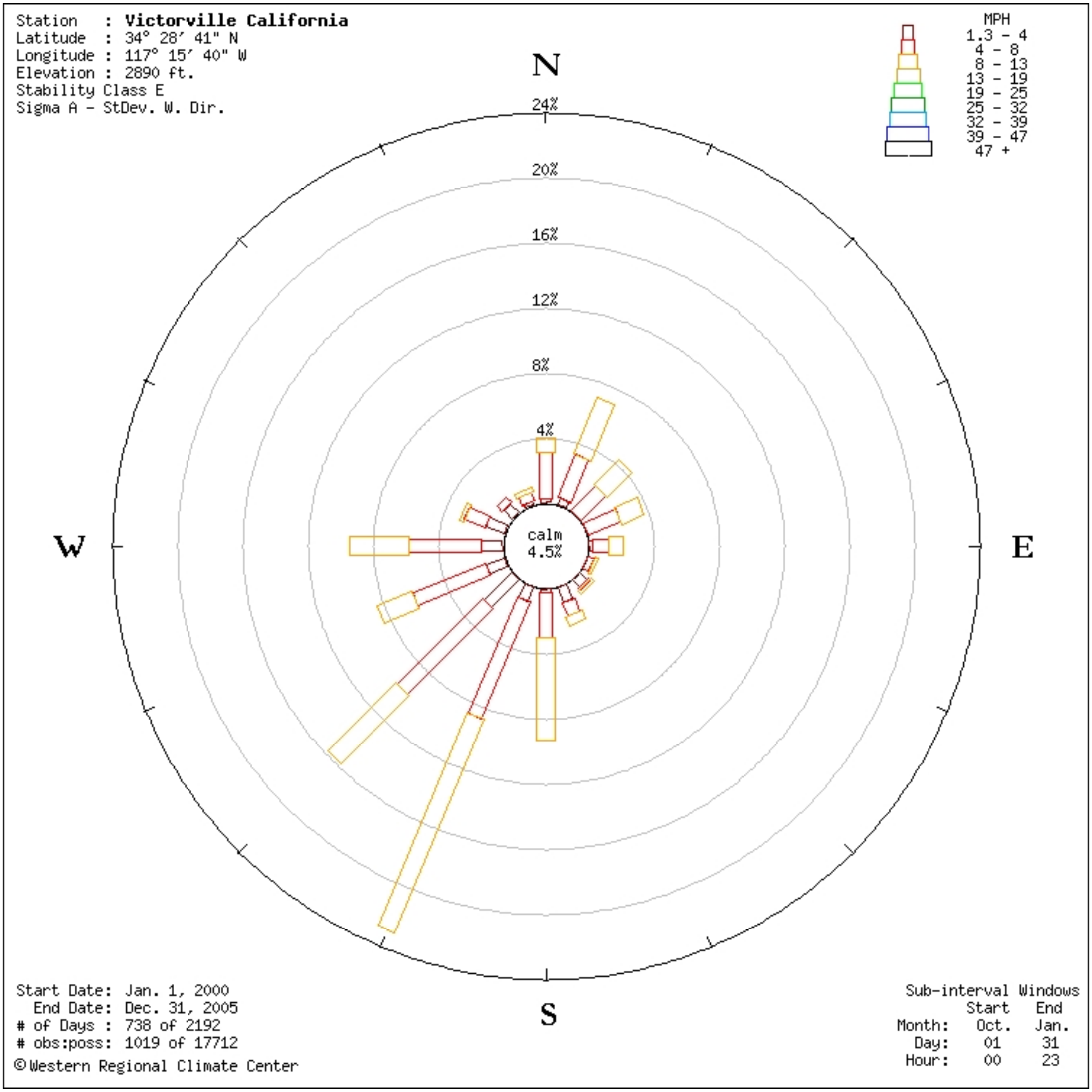


Exhibit 9
Stability Class E Wind Rose

Mestre Greve Associates

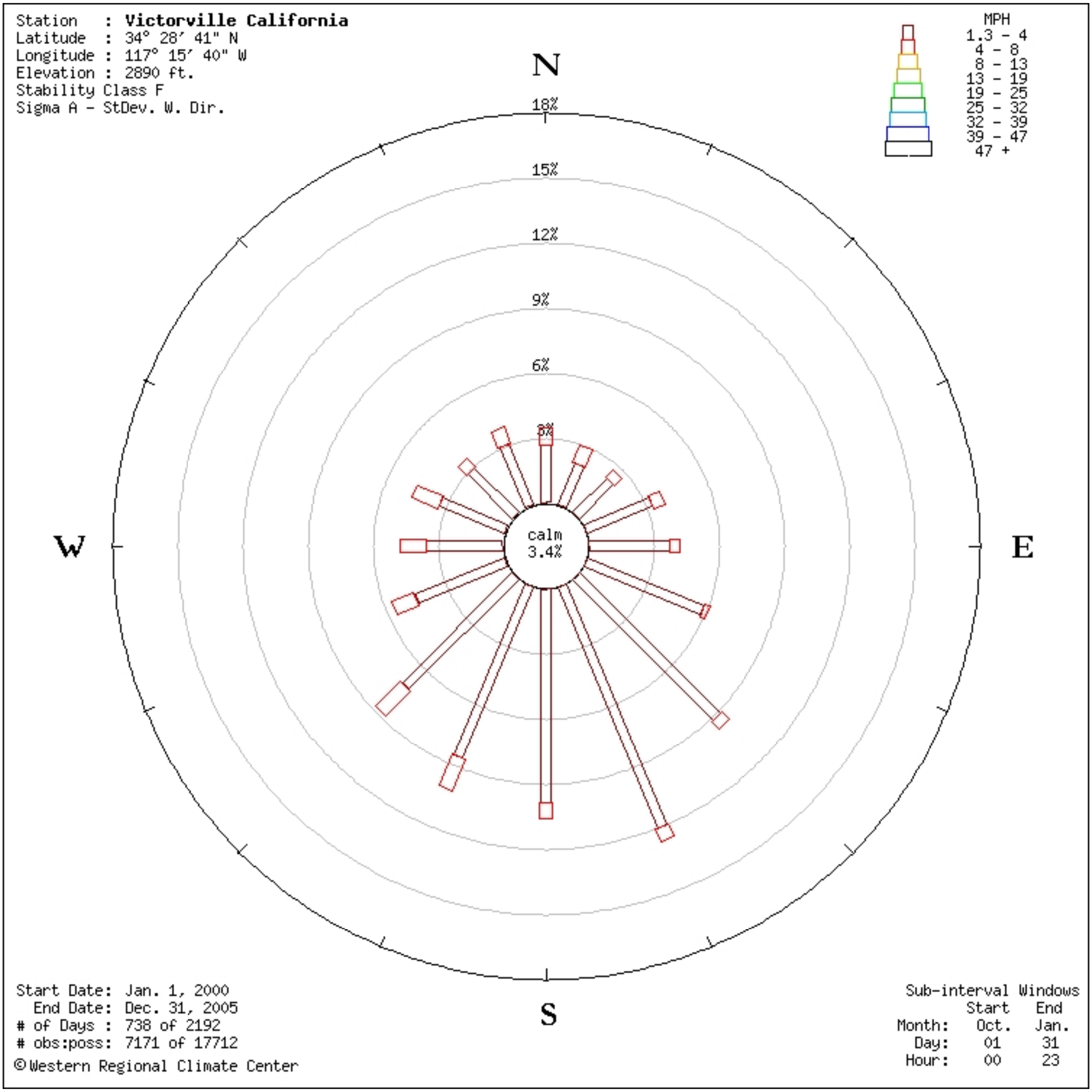


Exhibit 10
Fall/ Winter Stability Class F Wind Rose

Mestre Greve Associates

Additionally, the CO monitoring data from the Victorville station presented in Table 5 shows that existing 8-hour ambient CO concentrations at the Victorville monitoring station have not exceeded 2.1 ppm in the last four years. This is less than one-fourth of the 9 ppm standard. Further the Victorville station is located approximately 1,500 feet northwest of the I-15 Palmdale Road/7th Street interchange. Because of this, higher CO concentrations would be expected in the vicinity of the Victorville monitoring station than in the vicinity of the project.

Section B.5.1 of the CO Protocol discusses the persistence factors. The persistence factor is estimated using the average ratio of the 8-hour to 1-hour CO concentrations during the 10 highest 8-hour concentrations from the most recent three years that data is available. A higher persistence factor, on the order of 0.8, indicates persistent stagnant meteorological conditions and/or persistent traffic congestion. A typical persistence factors for rural and suburban areas is 0.6 and a typical factor for urban areas is 0.7. The data from the Victorville station gives a persistence factor of 0.70. This is higher than the 0.6 value expected for a rural/suburban area consistent with the Victorville area. However, the Victorville monitoring site is located in a relatively developed area and near I-15. Because I-15 is a major interstate travel corridor one would expect traffic volumes on I-15 to be fairly constant throughout the day resulting in relatively constant CO concentrations. The persistence factor for the Victorville station does not indicate stagnant meteorological conditions favorable to higher CO concentrations.

Based on the discussion presented above, the meteorological conditions in the vicinity of the project are not favorable to high CO concentrations during the representative fall (beginning in October) and winter period. Therefore, the project will not have adverse air quality impacts. The project is satisfactory and no further analysis is needed.

5.3 Local Analysis: PM10 Operational Impact

Table 2 of the report cites the MDAB with the status of moderate non-attainment of the PM10 standard per federal designation. Projects located in areas with non-attainment designations are subjected to §93.123. As aforementioned, the PM10 analysis for this report is qualitative based on FHWA guidance and Caltrans PM Transportation Project Analysis Protocol. Figure 1 of the protocol presents a flowchart that describes the steps in the protocol. This flow chart is presented in Exhibit 11. The steps taken are highlighted. Each applicable analysis box question in the figure is answered below. The analysis starts in Chart 2, question F2.1 because the project is located in a PM10 non-attainment area

Q: F2.1 Is there an existing facility appropriate for comparison with the proposed project (must meet Table 2 Criteria)?

A: No, we are not aware of existing facilities with local PM10 monitoring that are appropriate for comparison with the proposed project. Therefore, per F2.4 the analysis is continued on Chart 3-Threshold Screening.

Figure 1. Flowchart illustrating the step-by-step qualitative PM_{10} analysis protocol.

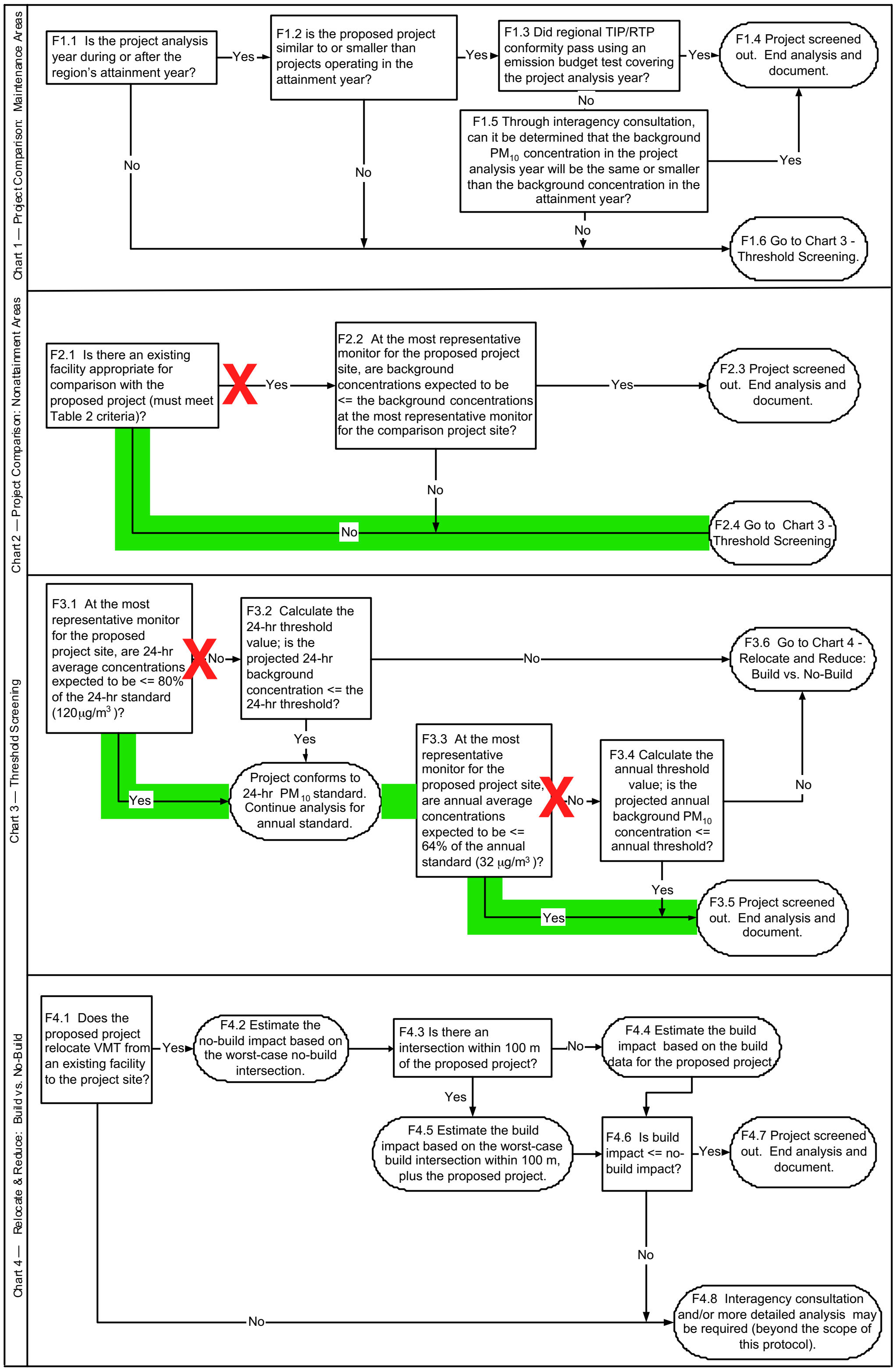


Exhibit 11
Caltrans PM10 Protocol Figure 1

Q: F3.1 At the most representative monitor for the proposed project site, are 24-hr average concentrations expected to be <=80% of the 24-hr standard (120µg/m³)

A: Yes, Table 7 presents the four highest 24-hour average concentrations for the last three years of PM10 monitoring data for the nearest ambient air quality monitoring station, the Hesperia station. The table shows that the 120 μg/m^3 threshold was exceeded once in 2003. However, this was during a period of intense wildfire activity in Southern California and is not representative of typical conditions. The next highest concentration is 60 μg/m^3, half of the threshold, which is representative of typical conditions. The data indicates a slight downward trend in concentrations that would be expected to continue in the future. Therefore, the project conforms to the 24-hour PM10 standard and the analysis is continued to the annual standard in Box F3.3.

Table 7
Hesperia Site Highest 24-Hour Average PM10 Measurements (µg/m³)

	2003		2004		2005	
	Date	**Level**	**Date**	**Level**	**Date**	**Level**
First High:	Oct. 30	129	Sept. 30	50	Oct. 25	58
Second High:	Oct. 24	60	Mar. 22	45	Apr. 16	48
Third High:	Dec. 5	58	Jan 16	44	Apr. 14	45
Fourth High:	Jul. 8	57	Aug. 31	43	Sep. 7	42
Year Coverage*:	99		97		94	

*Year Coverage indicates how complete monitoring was during the time of the year when concentrations are highest. 0 means there was no coverage; 100 means there was complete coverage.
Source: CARB Air Quality Data Statistics web site www.arb.ca.gov/adam/ accessed 6/8/06

Q: F3.3 At the most representatives monitor for the proposed project site, are annual average concentrations expected to be <= 64 % of the annual standard (32 µg/m³)?

A: Yes, although the 32 μg/m^3 threshold was exceeded in 2002, the annual average PM10 concentration at the Hesperia monitoring station has not exceeded 32 μg/m^3 threshold in the past three years and shows a slight downward trend. The annual average PM10 concentrations at the Hesperia monitoring station were 30.6 μg/m^3, 28.4 μg/m^3, and 28.7 μg/m^3 for the years 2003, 2004, and 2005 respectively. Annual average concentrations would not be expected to exceed the 32 μg/m^3 threshold in future years. The analysis then proceeds to box F3.5 where it is concluded that the project is screened out. That is, the analysis concludes that the project will not result in a local PM10 impact.

6.0 Other Air Quality Issues

6.1 Mobile Source Air Toxics

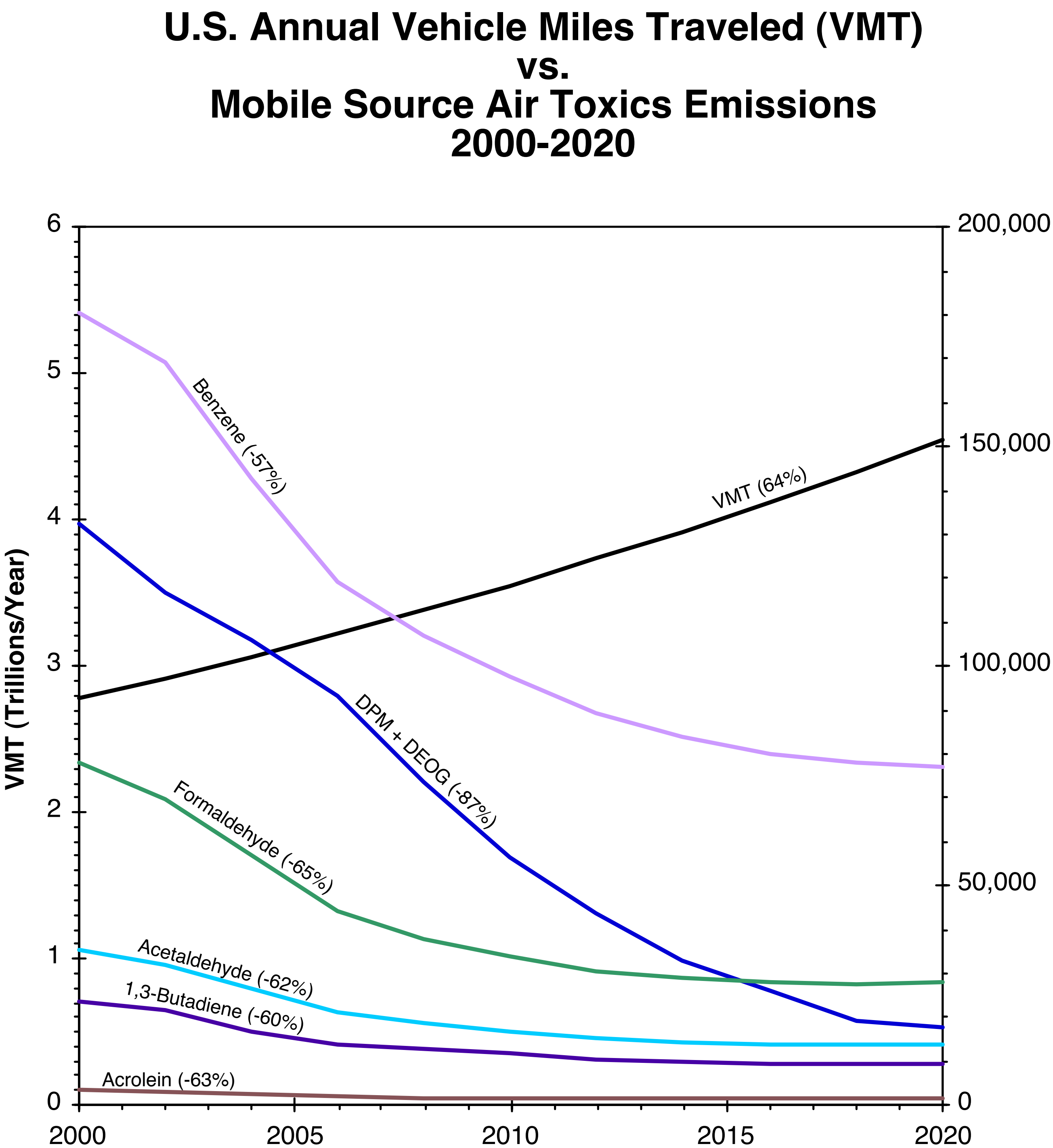
In addition to the criteria air pollutants for which there are National Ambient Air Quality Standards (NAAQS), EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act. The MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The EPA is the lead Federal Agency for administering the Clean Air Act and has certain responsibilities regarding the health effects of MSATs. The EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources. 66 FR 17229 (March 29, 2001). This rule was issued under the authority in Section 202 of the Clean Air Act. In its rule, EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements. Between 2000 and 2020, FHWA projects that even with a 64 percent increase in VMT, these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 percent to 65 percent, and will reduce on-highway diesel PM emissions by 87 percent, as shown in Exhibit 12.

As a result, EPA concluded that no further motor vehicle emissions standards or fuel standards were necessary to further control MSATs. The agency is preparing another rule under authority of CAA Section 202(l) that will address these issues and could make adjustments to the full 21 and the primary six MSATs.

The project will provide a new point for crossing of the BNSF railroad that bisects the City of Hesperia from north to south. The project will reduce trip lengths for persons traveling from the east side of the tracks to the west side of the city and I-15. This reduction in travel will result in a reduction in MSAT emissions. Traffic along existing roadways currently used by traffic that will be diverted by the project will be reduced. This will result in a reduction in MSAT emissions along these roadways due to fewer vehicles and reduced congestion.



Notes: For on-road mobile sources. Emissions factors were generated using MOBILE6.2. MTBE proportion of market for oxygenates is held constant, at 50%. Gasoline RVP and oxygenate content are held constant. VMT: Highway Statistics 2000, Table VM-2 for 2000, analysis assumes annual growth rate of 2.5%. “DPM + DEOG” is based on MOBILE6.2-generated factors for elemental carbon, organic carbon and SO4 from diesel-powered vehicles, with the particle size cutoff set at 10.0 microns.

Exhibit 12
VMT vs. MSAT Emissions

The project itself will have the effect of moving some traffic closer to nearby homes; therefore, along the project ambient concentrations of MSATs could be higher with the project than the No Build Alternative. However, as discussed below, the magnitude and the duration of these potential increases compared to the No-build alternative cannot be accurately quantified due to the inherent deficiencies of current models. Based on the relatively low level of traffic along the project (compared to a major freeway) and the low level of heavy trucks that would be expected to travel along the project MSAT levels along the project would not be expected to be excessive. However, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative along the project. MSATs will be lower in other locations when traffic shifts away from them. On a regional basis, ARB and EPA vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

6.1.1 Unavailable Information for Project Specific MSAT Impact Analysis

This study includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the project. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information:

Information that is Unavailable or Incomplete. Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

- **Emissions:** The EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model--emission factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. In addition, the emissions rates used in MOBILE 6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, EPA has identified problems with MOBILE6.2 as an obstacle to quantitative analysis.

  These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

- **Dispersion.** The tools to predict how MSATs disperse are also limited. The EPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The NCHRP is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.

- **Exposure Levels and Health Effects.** Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs. Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or State level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment. The IRIS database is located at http://www.epa.gov/iris. The following toxicity information for the six prioritized MSATs was taken from the IRIS database *Weight of Evidence Characterization* summaries. This information is taken verbatim from EPA's IRIS database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- **Benzene** is characterized as a known human carcinogen.

- The potential carcinogenicity of **acrolein** cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.

- **Formaldehyde** is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.

- **1,3-butadiene** is characterized as carcinogenic to humans by inhalation.

- **Acetaldehyde** is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- **Diesel exhaust** (DE) is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.

- **Diesel exhaust** also represents chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by EPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway MSAT hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes -- particularly respiratory problems. Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment, and Evaluation of impacts based upon theoretical approaches or research methods generally accepted in the scientific community. Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

In this document, FHWA has provided a qualitative analysis of MSAT emissions and acknowledges that the project may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

6.2 Diesel Toxics

The California Air Resources Board (CARB) has found that diesel particulate matter (PM) poses the greatest cancer risks among all identified air toxics. Diesel trucks contribute more that half of the total diesel combustion sources. However, the CARB has adopted a Diesel Risk Reduction Plan (DRRP) with control measures that would reduce the overall diesel PM emissions by about 85% from 2000 to 2020. In addition, total toxic risk from diesel exhaust may only be exposed for a much shorter duration. Further, diesel PM is only one of many environmental toxics and those of other toxics and other pollutants in various environmental media may over shadow its cancer risks. Thus, while diesel exhaust may pose potential cancer risks, most receptors' short-term exposure would only cause minimal harm, and these risks would also greatly diminish in the future operating years of the project due to planned emission control regulations.

We can evaluate whether there may be any potential impacts from the project by qualitatively comparing the build scenarios to the no-build scenario. The CO analysis presented above shows that the project would not result in a substantial CO concentrations at receptors near the project. We conclude that the project would not cause any additional negative air toxics impact, based on the following comparison; (a) There will not be any substantial increase in diesel truck traffic in either of the build scenarios compared to the no-build scenario; (b) The build scenario for the Project would reduce congestion levels and stop-and-go conditions and change them into more free-flow conditions, therefore decreasing the acceleration events that cause the highest-per-vehicle exhaust emissions.

6.3 Naturally Occurring Asbestos (NOA)

Asbestos is a term used for several types of naturally occurring fibrous minerals that are a human health hazard when airborne. The most common type of asbestos is chrysotile, but other types such as tremolite and actinolite are also found in California. Asbestos is classified as a known human carcinogen by state, federal, and international agencies and was identified as a toxic air contaminant by the California Air Resources Board (CARB) in 1986. All types of asbestos are hazardous and may cause lung disease and cancer.

Asbestos can be released from serpentinite and ultramafic rocks when the rock is broken or crushed. At the point of release, the asbestos fibers may become airborne, causing air quality and human health hazards. These rocks have been commonly used for unpaved gravel roads, landscaping, fill projects and other improvement projects in some localities. Asbestos may be released to the atmosphere due to vehicular traffic on unpaved roads, during grading for development projects, and at quarry operations. All of these activities may have the effect of releasing potentially harmful asbestos into the air. Natural weathering and erosion processes can act on asbestos bearing rock and make it easier for asbestos fibers to become airborne if such rock is disturbed.

Serpentinite may contain chrysotile asbestos, especially near fault zones. Ultramafic rock, a rock closely related to serpentinite, may also contain asbestos minerals. Asbestos can also be associated with other rock types in California, though much less frequently than serpentinite and/or ultramafic rock. Serpentinite and/or ultramafic rock are known to be present in 44 of California's 58 counties. These rocks are particularly abundant in the counties of the Sierra Nevada foothills, the Klamath Mountains, and Coast Ranges. The Governor's Office of Planning and Research has developed a list of counties with Serpentine and/or Ultramific Rock. Neither Riverside nor Orange County are on this list. Further, the California Department of Conservation, Division of Mines and Geology has developed a map of the state showing the general location of Ultramific rock in the state. This map indicates that there are no occurrences of Ultramific rock in the vicinity of the project or in San Bernardino Counties.

While unlikely, if naturally occurring asbestos, serpentine, or ultramific rock is discovered during grading operations Section 93105, Title 17 of the California Code of Regulations requires notification of the MDAQMD by the next business day and implementation of the following measures within 24-hours:

1. Unpaved areas subject to vehicle traffic must be stabilized by being kept adequately wetted, treated with a chemical dust suppressant, or covered with material that contains less than 0.25 percent asbestos;

2. The speed of any vehicles and equipment traveling across unpaved areas must be no more than fifteen (15) miles per hour unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment traveling more than 15 miles per hour from emitting dust that is visible crossing the project boundaries;

3. Storage piles and disturbed areas not subject to vehicular traffic must be stabilized

by being kept adequately wetted, treated with a chemical dust suppressant, or covered with material that contains less than 0.25 percent asbestos*;* and

4. Activities must be conducted so that no track-out from any road construction project is visible on any paved roadway open to the public.

5. Equipment and operations must not cause the emission of any dust that is visible crossing the project boundaries.

7.0 Conclusion

This project-level Air Quality report addresses all pertinent aspects of conformity and adheres to the Transportation Conformity Rule and currently the proposed project is listed in the FHWA approved 2004 RTP and 2004 RTIP. In any event, an in-depth discussion of project conformity to the FHWA approved 2004 RTP and 2004 RTIP is provided. The essential role of SIP in regional analysis is documented in this report. A comprehensive analysis of project-level CO and PM10 has concluded that the proposed project does not pose any significant operational impact on the ambient air quality in the project vicinity. The analysis shows that it is unlikely that the project will cause the ambient CO or PM10 to exceed the NAAQS standard. A discussion of fugitive dust control measures is provided, and it is recommended that the measure be included as project commitments prior to construction. Overall, the project should result in a reduction of Mobile Source Air Toxics (MSAT) by shortening travel trips and reducing congestion along existing roads that will have traffic diverted by the project. However, the project will result in a slight increase in MSAT concentrations in the immediate vicinity of the project site as it represents a new source of MSAT in the immediate area. However, because the projected traffic volumes and heavy truck traffic along the project are relatively low (compared to a major freeway) MSAT levels along the project would not be expected to be excessive.

8.0 References

California Air Resource Board, Air Quality Data Statistics web site www.arb.ca.gov/adam/, accessed June 8, 2006.

California Department of Conservation Division of Mines and Geology, A General Location Guide for Ultramific Rocks in California – Areas More Likely To Contain Naturally Occurring Asbestos, Open File Report 2000-19, dated August 20, 2000
(ftp://ftp.consrv.ca.gov/pub/dmg/pubs/ofr/ofr_2000-019.pdf)

California Department of Transportation, Division of Environmental Analysis, Air Quality, Caltrans Interim Guidance: Project-Level PM10 Hot-Spot Analysis, January 11, 2002.
(http://www.dot.ca.gov/hq/env/air/Documents/pmqualguidext.pdf)

Environmental Protection Agency, Guidance for Qualitative Project Level "Hot Spot" Analysis in PM-10 Nonattainment and Maintenance Areas, September 12, 2001
(http://www.fhwa.dot.gov/environment/conformity/hspotmem.htm)

Environmental Protection Agency, 40 CFR Part 93 $PM_{2.5}$ and PM_{10} Hot-Spot Analyses in Project-Level Transportation Conformity Determinations for the New $PM_{2.5}$ and Existing PM_{10} National Ambient Air Quality Standards; Final Rule, (71 FR12468), March 10, 2006

Environmental Protection Agency & Federal Highway Administration, Transportation Conformity Guidance for Qualitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas (EPA420-B-06-902), March 2006
(http://www.epa.gov/otaq/stateresources/transconf/policy/420b06902.pdf)

Federal Highway Administration, Memorandum: Interim Guidance on Air Toxics Analysis in NEPA Documents, February 3, 2006
(www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm)

Governor's Office of Planning and Research, Memorandum from Terry Roberts, Senior Planner, Addressing Naturally Occurring Asbestos in CEQA Documents, dated October 26, 2000
(http://www.opr.ca.gov/clearinghouse/asbestos.html)

Kunzman Associates , City of Hesperia Ranchero Road Grade Separation Traffic Impact Analysis (Revised),December 16, 2005.

Mojave Desert Air Quality Management District, MDAQMD Ozone Attainment Plan (State and Federal), April 26, 2004
(http://www.mdaqmd.ca.gov/rules_plans/documents/MDOzonePlanFinal.pdf)

Mojave Desert Air Quality Management District, Mojave Desert Planning Area Federal Particulate Matter (PM10) Attainment Plan, July 31, 1995
(http://www.mdaqmd.ca.gov/rules_plans/documents/MDOzonePlanFinal.pdf)

Mojave Desert Air Quality Management District. Rule 403.2: Fugitive Dust Control for the Mojave Desert Planning Area, July, 22, 1996.
(http://www.mdaqmd.ca.gov/rules_plans/documents/MDPAPM10Plan.pdf)

Southern California Association of Governments, 2004 Regional Transportation Improvement Program, Adopted October 2004.
(http://www.scag.ca.gov/rtp2004/2004draft/FinalPlan.htm)

Southern California Association of Governments, Destination 2030: 2004 Regional Transportation Improvement Program, Adopted April 2004.
(http://www.scag.ca.gov/rtip/rtip2004/adopted.htm)

University of California, Davis-Caltrans Air Quality Project, Technical Report, Particulate Matter and Transportation Projects, an Analysis Protocol, February 23, 2005
(http://aqp.engr.ucdavis.edu/Documents/Qual%20PM%20Feb%202005%20Final%20Report.pdf
)

University of California, Davis, Institute of Transportation Studies, Transportation Project-Level Carbon Monoxide Protocol (UCD-ITS-RR-97-21).. December 1997
(http://www.dot.ca.gov/hq/env/air/coprot.htm)

Appendix

Excerpt from RTIP Project List showing Ranchero Road Projects

LEAD AGENCY	PROJECT ID	AIR BASIN	MODEL NO	PROG CODE	RTE	POST MI BEG	END	DESCRIPTION	FUND	YEAR	ENG	ROW	CONS	TOTAL	PRIOR	2004/05	2005/06	2006/07	2007/08-2009/10	PROJECT TOTAL	CONF CAT	ELMT
								NEW LANES)														
HESPERIA	200013	MDAB		NCR31	0	.0	.0	MAPLE AVENUE FROM MAIN ST. TO 650' SOUTH OF CROMDALE STREET - REHABILITATION - RESURFACE 2 LANE RD. (NO NEW LANES)	CITY CITY	07/08 08/09	90 0	0 0	0 1885	90 1885	0	0	0	0	1975	1975	EXEMPT	1
HESPERIA	200209	MDAB		CAR63	0	.0	.0	IN HESPERIA - PAVE ESCONDIDO ROAD FROM RANCHERO TO CEDAR (2.0 MILES). PAVE 4 LANES OF ROADWAY	CITY CITY CITY	07/08 08/09 09/10	200 0 0	0 1700 0	0 0 4000	200 1700 4000	0	0	0	0	5900	5900	NON-FEDERAL /NON-REGIONAL	1
HESPERIA	200210	MDAB	S271	CAX63	0	.0	.0	IN HESPERIA - ON BEAR VALLEY RD. FROM I-15 TO MOJAVE RIVER (CITY LIMITS) APPROX. 5.5 MILES - WIDEN SOUTHSIDE FROM 2-3 LANES	CITY	04/05	125	1500	2600	4225	0	4225	0	0	0	4225	NON-FEDERAL /NON-REGIONAL	1
HESPERIA	200211	MDAB	S271	CAX63	0	.0	.0	IN HESPERIA ON I STREET FROM MAIN ST. TO BEAR VALLEY RD. APPROX. 4.4 MILES - WIDEN FROM 2-4 LANES	CITY CITY CITY	07/08 08/09 09/10	300 0 0	0 1900 0	0 0 5500	300 1900 5500	0	0	0	0	7700	7700	NON-FEDERAL /NON-REGIONAL	1
HESPERIA	SBD031276	MDAB		NCN31	0	.0	.0	RANCHERO ROAD 7TH AVENUE TO DANBURY REALIGN ROAD AND CONSTRUCT RAILROAD UNDERCROSSING	CBIP CITY CITY CITY CITY	04/05 04/05 05/06 07/08 08/09	1500 195 800 0 0	0 0 0 2345 12995	0 0 0 0 0	1500 195 800 2345 12995	0	1695	800	0	15340	17835	EXEMPT	2
HESPERIA	SBD031284	MDAB	S273	CAR63	0	.0	.0	"I" AVENUE FROM RANCHERO RD TO MAIN ST. WIDEN FROM 2 LANES TO 4 LANES	CITY CITY CITY	07/08 08/09 09/10	270 0 0	0 1500 0	0 0 5100	270 1500 5100	0	0	0	0	6870	6870	NON-FEDERAL /NON-REGIONAL	1
HESPERIA	SBD41289	MDAB	4561	CAX63	0	.0	.0	RANCHO LAS FLORES PARKWAY -NO LANES CURRENTLY EXIST. DEVELOPER TO CONST RUCT HIGHWY 138 TO RANCHERO RD. 2 LANES IN EACH DIRECTION.	MELLO	06/07	0	0	7000	7000	0	0	0	7000	0	7000	NON-FEDERAL /NON-REGIONAL	1
HESPERIA	SBD55025	MDAB	4691	CAX63	0	.0	.0	MAIN STREET FROM ESCONDIDO TO 11TH AVE - WIDEN AND RECONSTRUCT FROM 4 - 6 LANES, INCLUDING WIDENING OF BRIDGE OVER CALIFORNIA AQUEDUCT (2.75 MILES)	CITY CITY	07/08 08/09	850 0	0 1500	0 7650	850 9150	0	0	0	0	10000	10000	NON-FEDERAL /NON-REGIONAL	1
HESPERIA	SBD55027	MDAB	4692	CAX66	0	.0	.0	SUMMIT VALLEY RD. FROM RANCHERO RD. TO SR138 - DESIGN, ACQUIRE ROW AND CONSTRUCT NEW 2 LANE RD. (6.00 MILES)	CITY CITY CITY	05/06 06/07 07/08	1400 0 0	0 7260 0	0 0 9140	1400 7260 9140	0	0	1400	7260	9140	17800	NON-FEDERAL /NON-REGIONAL	1
HESPERIA	SBD55028	MDAB	4693	CAR63	0	.0	.0	RANCHERO RD. FROM DANBURY TO ARROWHEAD LAKE RD. - WIDEN FROM 2 TO 4 LANES (9.50 MILES)	CITY CITY CITY	07/08 08/09 09/10	1000 0 0	0 2000 0	0 0 8000	1000 2000 8000	0	0	0	0	11000	11000	NON-FEDERAL /NON-REGIONAL	1
HESPERIA	SBD55029	MDAB	4693	CAX63	0	.0	.0	RANCHERO RD. FROM 7TH AVE. TO DANBURY RD WIDEN FROM 2 TO 4 LANES (3.00 MILES)	CITY CITY CITY	07/08 08/09 09/10	800 0 0	0 1500 0	0 0 3700	800 1500 3700	0	0	0	0	6000	6000	NON-FEDERAL /NON-REGIONAL	1
HESPERIA	SBD55030	MDAB	4693	CAX63	0	.0	.0	RANCHERO RD. FROM I-15 TO 7TH ST. - WIDEN FROM 2 TO 4 LANES (5.50 MILES)	CITY CITY CITY	07/08 08/09 09/10	1000 0 0	0 2000 0	0 0 8000	1000 2000 8000	0	0	0	0	11000	11000	NON-FEDERAL /NON-REGIONAL	1
HIGHLAND	200018	SCAB	S274	CAR63	0	.0	.0	BOULDER AV ACROSS CITY CREEK S/O BASELINE - RECONSTRUCT EXISTING	DEV FEE	07/08 07/08	500 0	0 0	6000 1000	6500 1000	0	0	0	0	7500	7500	NON-FEDERAL	1

Excerpt from RTP Project List showing Ranchero Road Projects

LEAD AGENCY	PROJECT ID	AIR BASIN	ROUTE	PMB	PMA	DESCRIPTION	COMPLETION DATE	CONFORMITY CATEGORY
FONTANA	SBD41282	SCAB	0	0	0	CITRUS AVE. AT MILLER INTERSECTION INSTALL TRAFFIC SIGNAL_AND ADD UP TO 5 FT. TO THE SHOULDERS FOR ALL APPROACHES TO INTERSECTION	20060601	EXEMPT/TRAFFIC SIGNALIZATION
FONTANA	SBD41283	SCAB	0	0	0	RANDALL AVE. AT OLEANDER INTERSECT. INSTALL TRAFFIC SIGNAL_AND ADD UP TO 5 FT. TO THE SHOULDERS FOR ALL APPROACHES TO INTERSECTION	20060601	EXEMPT/TRAFFIC SIGNALIZATION
FONTANA	SBD41284	SCAB	0	0	0	MERRILL AVE AT MANGO INTERSECTION INSTALL TRAFFIC SIGNAL_AND ADD UP TO 5 FT. TO THE SHOULDERS FOR ALL APPROACHES TO INTERSECTION	20070601	EXEMPT/TRAFFIC SIGNALIZATION
FONTANA	SBD41285	SCAB	0	0	0	SAN BERNARDINO AVE. AT CYPRESS INTERSECTION INSTALL TRAFFIC SIGNAL_AND ADD UP TO 5 FT. TO THE SHOULDERS FOR ALL APPROACHES TO INTERSECTION	20060601	EXEMPT/TRAFFIC SIGNALIZATION
FONTANA	SBD55022	SCAB	0	0	0	CYPRESS AVENUE FROM VALLEY BLVD. TO SLOVER AVENUE CONSTRUCT NEW FOUR LANE BRIDGE OVERCROSSING OVER I-10 WITH TRAFFIC SIGNALS & SAFETY LIGHTING	20060601	NON-FEDERAL/NON-REGIONAL
FONTANA	SBD78024	SCAB	0	0	0	SANTA ANA AT LIVE OAK RAILROAD CROSSINGS AND SIGNALS	20070601	EXEMPT/TRAFFIC SIGNALIZATION
GRAND TERRACE	SBD55024	SCAB	0	0	0	MOUNT VERNON AVENUE FROM CANAL ST. TO WASHINGTON ST. ROADWAY RECONSTRUCTION FOR SEISMIC SAFETY	20061201	EXEMPT/TRAFFIC SIGNALIZATION
HESPERIA	200012	MDAB	0	0	0	MAPLE AVENUE FROM MARIPOSA TD. TO MAIN STREET - ROAD REHAB. - RESURFACING 2 EXISTING LANES (NO NEW LANES)	20081201	EXEMPT/TRAFFIC SIGNALIZATION
HESPERIA	200013	MDAB	0	0	0	MAPLE AVENUE FROM MAIN ST. TO 650' SOUTH OF CROMDALE STREET - REHABILITATION - RESURFACE 2 LANE RD. (NO NEW LANES)	20081201	EXEMPT/TRAFFIC SIGNALIZATION
HESPERIA	200209	MDAB	0	0	0	IN HESPERIA - PAVE ESCONDIDO ROAD FROM RANCHERO TO CEDAR (2.0 MILES). PAVE 4 LANES OF ROADWAY	20080630	NON-FEDERAL/NON-REGIONAL
HESPERIA	200210	MDAB	0	0	0	IN HESPERIA - ON BEAR VALLEY RD. FROM I-15 TO MOJAVE RIVER (CITY LIMITS) APPROX. 5.5 MILES - WIDEN SOUTHSIDE FROM 2-3 LANES	20050630	NON-FEDERAL/NON-REGIONAL
HESPERIA	200211	MDAB	0	0	0	IN HESPERIA ON I STREET FROM MAIN ST. TO BEAR VALLEY RD. APPROX. 4.4 MILES - WIDEN FROM 2-4 LANES	20080630	NON-FEDERAL/NON-REGIONAL
HESPERIA	SBD031276	MDAB	0	0	0	RANCHERO ROAD 7TH AVENUE TO DANBURY REALIGN ROAD AND CONSTRUCT RAILROAD UNDERCROSSING	20060630	EXEMPT/TRAFFIC SIGNALIZATION
HESPERIA	SBD031284	MDAB	0	0	0	'I" AVENUE FROM RANCHERO RD TO MAIN ST. WIDEN FROM 2 LANES TO 4 LANES	20070630	NON-FEDERAL/NON-REGIONAL
HESPERIA	SBD41289	MDAB	0	0	0	RANCHO LAS FLORES PARKWAY -NO LANES CURRENTLY EXIST. DEVELOPER TO CONST RUCT HIGHWY 138 TO RANCHERO RD. 2 LANES IN EACH DIRECTION.	20071201	NON-FEDERAL/NON-REGIONAL
HESPERIA	SBD55025	MDAB	0	0	0	MAIN STREET FROM ESCONDIDO TO 11TH AVE - WIDEN AND RECONSTRUCT FROM 4 - 6 LANES, INCLUDING WIDENING OF BRIDGE OVER CALIFORNIA AQUEDUCT (2.75 MILES)	20070630	NON-FEDERAL/NON-REGIONAL

LEAD AGENCY	PROJECT ID	AIR BASIN	ROUTE	PMB	PMA	DESCRIPTION	COMPLETION DATE	CONFORMITY CATEGORY
HESPERIA	SBD55027	MDAB	0	0	0	SUMMIT VALLEY RD. FROM RANCHERO RD. TO SR138 - DESIGN, ACQUIRE ROW AND CONSTRUCT NEW 2 LANE RD. (6.00 MILES)	20081201	NON-FEDERAL/NON-REGIONAL
HESPERIA	SBD55028	MDAB	0	0	0	RANCHERO RD. FROM DANBURY TO ARROWHEAD LAKE RD. - WIDEN FROM 2 TO 4 LANES (9.50 MILES)	20081201	NON-FEDERAL/NON-REGIONAL
HESPERIA	SBD55029	MDAB	0	0	0	RANCHERO RD. FROM 7TH AVE. TO DANBURY RD WIDEN FROM 2 TO 4 LANES (3.00 MILES)	20071201	NON-FEDERAL/NON-REGIONAL
HESPERIA	SBD55030	MDAB	0	0	0	RANCHERO RD. FROM I-15 TO 7TH ST. - WIDEN FROM 2 TO 4 LANES (5.50 MILES)	20071201	NON-FEDERAL/NON-REGIONAL
HIGHLAND	200018	SCAB	0	0	0	BOULDER AV ACROSS CITY CREEK S/O BASELINE - WIDEN EXISTING BRIDGE FROM 2 TO 4 LANES	20060601	NON-FEDERAL/NON-REGIONAL
HIGHLAND	200019	SCAB	0	0	0	BASELINE ACROSS CITY CREEK - RECONSTRUCT EXISTING BRIDGE TO INCREASE HYDRAULIC CAPACITY (NO CHANGE IN NUMBER OF LANES - STILL 4)	20080601	EXEMPT/TRAFFIC SIGNALIZATION
HIGHLAND	200212	SCAB	0	0	0	IN HIGHLAND- ON GREENSPOT RD. BRIDGE OVER SANTA ANA RIVER (.045)- CONSTRUCT A NEW 4 LANE BRIDGE AT SANTA ANA RIVER XING - REALIGN 2,400' OF GREENSPOT RD, CONSTRUCT CHANNEL IMPROVMTS	20050601	NON-FEDERAL/NON-REGIONAL
HIGHLAND	200213	SCAB	0	0	0	IN HIGHLAND - ON 3RD ST. FROM PALM AVE. TO 5TH ST. WIDEN 3RD ST. OF PALM AVE. FROM 2 TO 4 LANES AND EXTEND 3RD ST. EASTERLY TO CONNECT 5TH ST.	20080630	NON-FEDERAL/NON-REGIONAL
HIGHLAND	SBD31886	SCAB	0	0	0	CUNNINGHAM STREET FROM NINTH STREET TO BASELINE - WIDEN FROM 2 TO 4 LANES	20051201	NON-FEDERAL/NON-REGIONAL
HIGHLAND	SBD55031	SCAB	0	0	0	ALABAMA STREET FROM 3RD STREET TO SOUTH CITY LIMITS - WIDEN FROM 2 TO 4 LANES (0.25 MILES)	20070630	NON-FEDERAL/NON-REGIONAL
HIGHLAND	SBD55032	SCAB	0	0	0	FIFTH STREET FROM BOULDER AVENUE TO SR30 - WIDEN FROM 2 TO 4 LANES (0.80 MILES)	20050630	NON-FEDERAL/NON-REGIONAL
HIGHLAND	SBD55033	SCAB	0	0	0	BOULDER AVE. FROM 5TH ST. TO SOUTH CITY LIMITS - WIDEN FROM 2-4 LANES (0.60 MILES)	20080630	NON-FEDERAL/NON-REGIONAL
HIGHLAND	SBD94142	SCAB	0	0	0	VARIOUS LOCATIONS MINOR IMPROVEMENTS	20080630	EXEMPT/TRAFFIC SIGNALIZATION
LOMA LINDA	SBD031290	SCAB	0	0	0	MOUNTAIN VIEW AVENUE VAN LEUVAN TO PROSPECT WIDEN TWO EXISTING BRIDGES FROM 2 LANES TO 4 LANES	20060630	NON-FEDERAL/NON-REGIONAL
LOMA LINDA	SBD031294	SCAB	0	0	0	REDLANDS BOULEVARD AT CALIFORNIA STREET WIDEN INTERSECTION AND INSTALL TRAFFIC SIGNALS AND DRAINAGE	20080530	EXEMPT/TRAFFIC SIGNALIZATION
LOMA LINDA	SBD031295	SCAB	0	0	0	BARTON ROAD EAST CITY LIMITS TO WEST CITY LIMITS WIDEN FROM 4 LANES TO 6 LANES SPOT WIDENINGS	20081201	NON-FEDERAL/NON-REGIONAL
LOMA LINDA	SBD031296	SCAB	0	0	0	REDLANDS BOULEVARD EAST CITY LIMITS TO WEST CITY LIMITS WIDEN FROM 4 LANES TO 6 LANES	20080601	NON-FEDERAL/NON-REGIONAL
LOMA LINDA	SBD31875	SCAB	0	0	0	MOUNTAIN VIEW AVENUE PROSPECT AVENUE TO VAN LEUVAN AVENUE - ADD PEDESTRIAN WALKWAY TO OUTSIDE OF BRIDGE	20060330	EXEMPT/TRAFFIC SIGNALIZATION
LOMA LINDA	SBD31876	SCAB	0	0	0	CALIFORNIA STREET BARTON ROAD TO REDLANDS BOULEVARD WIDEN FROM 2 TO 6 LANES	20080430	NON-FEDERAL/NON-REGIONAL